



# SEQUENCE LISTING

<110> Artavanis-Tsakonas, Spyridon  
Fehon, Richard Grant  
Zagouras, Panayiotis  
Blaumueller, Christine Marie

<120> THERAPEUTIC AND DIAGNOSTIC METHODS AND  
COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS

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<140> 10/781,060

<141> 2004-02-17

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<151> 2000-05-04

<150> 08/532,384

<151> 1995-09-22

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<151> 1993-06-25

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 cat aag ata tcc gca gct ggt aac ttc gag ctg gaa ata tta gaa atc 711  
 His Lys Ile Ser Ala Ala Gly Asn Phe Glu Leu Glu Ile Leu Glu Ile  
 75 80 85 90  
 tca aat acc aac agc cat cta ctc aac ggc tat tgc tgc ggc atg cca 759

Ser	Asn	Thr	Asn	Ser	His	Leu	Leu	Asn	Gly	Tyr	Cys	Cys	Gly	Met	Pro		
				95					100					105			
gcg	gaa	ctt	agg	gcc	acc	aag	acg	ata	ggc	tgc	tcg	cca	tgc	acg	acg		807
Ala	Glu	Leu	Arg	Ala	Thr	Lys	Thr	Ile	Gly	Cys	Ser	Pro	Cys	Thr	Thr		
			110					115					120				
gca	ttc	cgg	ctg	tgc	ctg	aag	gag	tac	cag	acc	acg	gag	cag	ggg	gcc		855
Ala	Phe	Arg	Leu	Cys	Leu	Lys	Glu	Tyr	Gln	Thr	Thr	Glu	Gln	Gly	Ala		
		125					130					135					
agc	ata	tcc	acg	ggc	tgt	tcg	ttt	ggc	aac	gcc	acc	acc	aag	ata	ctg		903
Ser	Ile	Ser	Thr	Gly	Cys	Ser	Phe	Gly	Asn	Ala	Thr	Thr	Lys	Ile	Leu		
	140					145					150						
ggg	ggc	tcc	agc	ttt	gtg	ctc	agc	gat	ccg	ggg	gtg	gga	gcc	att	gtg		951
Gly	Gly	Ser	Ser	Phe	Val	Leu	Ser	Asp	Pro	Gly	Val	Gly	Ala	Ile	Val		
155					160				165						170		
ctg	ccc	ttt	acg	ttt	cgt	tgg	acg	aag	tcg	ttt	acg	ctg	ata	ctg	cag		999
Leu	Pro	Phe	Thr	Phe	Arg	Trp	Thr	Lys	Ser	Phe	Thr	Leu	Ile	Leu	Gln		
				175					180					185			
gcg	ttg	gat	atg	tac	aac	aca	tcc	tat	cca	gat	gcg	gag	agg	tta	att		1047
Ala	Leu	Asp	Met	Tyr	Asn	Thr	Ser	Tyr	Pro	Asp	Ala	Glu	Arg	Leu	Ile		
			190					195					200				
gag	gaa	aca	tca	tac	tcg	ggc	gtg	ata	ctg	ccg	tcg	ccg	gag	tgg	aag		1095
Glu	Glu	Thr	Ser	Tyr	Ser	Gly	Val	Ile	Leu	Pro	Ser	Pro	Glu	Trp	Lys		
		205				210						215					
acg	ctg	gac	cac	atc	ggg	cgg	aac	gcg	cgg	atc	acc	tac	cgt	gtc	cgg		1143
Thr	Leu	Asp	His	Ile	Gly	Arg	Asn	Ala	Arg	Ile	Thr	Tyr	Arg	Val	Arg		
	220					225					230						
gtg	caa	tgc	gcc	gtt	acc	tac	tac	aac	acg	acc	tgc	acg	acc	ttc	tgc		1191
Val	Gln	Cys	Ala	Val	Thr	Tyr	Tyr	Asn	Thr	Thr	Cys	Thr	Thr	Phe	Cys		
235					240				245					250			
cgt	ccg	cgg	gac	gat	cag	ttc	ggg	cac	tac	gcc	tgc	ggc	tcc	gag	ggg		1239
Arg	Pro	Arg	Asp	Asp	Gln	Phe	Gly	His	Tyr	Ala	Cys	Gly	Ser	Glu	Gly		
				255				260						265			
cag	aag	ctc	tgc	ctg	aat	ggc	tgg	cag	ggc	gtc	aac	tgc	gag	gag	gcc		1287
Gln	Lys	Leu	Cys	Leu	Asn	Gly	Trp	Gln	Gly	Val	Asn	Cys	Glu	Glu	Ala		
			270				275						280				
ata	tgc	aag	gcg	ggc	tgc	gac	ccc	gtc	cac	ggc							1320
Ile	Cys	Lys	Ala	Gly	Cys	Asp	Pro	Val	His	Gly							
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<210> 4

<211> 293

<212> PRT

<213> Drosophila

<220>

<223> Drosophila Serrate protein



<400> 4

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Glu Ser Thr Ile Glu Ser Ala Asp Ser Leu Gly Met Ser Lys Lys Thr
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Ala Thr Lys Arg Gln Arg Pro Arg His Arg Val Pro Lys Ile Ala Thr
      35           40           45
Leu Pro Ser Thr Ile Arg Asp Cys Arg Ser Leu Lys Ser Ala Cys Asn
      50           55           60
Leu Ile Ala Leu Ile Leu Ile Leu Leu Val His Lys Ile Ser Ala Ala
      65           70           75           80
Gly Asn Phe Glu Leu Glu Ile Leu Glu Ile Ser Asn Thr Asn Ser His
      85           90           95
Leu Leu Asn Gly Tyr Cys Cys Gly Met Pro Ala Glu Leu Arg Ala Thr
      100          105          110
Lys Thr Ile Gly Cys Ser Pro Cys Thr Thr Ala Phe Arg Leu Cys Leu
      115          120          125
Lys Glu Tyr Gln Thr Thr Glu Gln Gly Ala Ser Ile Ser Thr Gly Cys
      130          135          140
Ser Phe Gly Asn Ala Thr Thr Lys Ile Leu Gly Gly Ser Ser Phe Val
      145          150          155          160
Leu Ser Asp Pro Gly Val Gly Ala Ile Val Leu Pro Phe Thr Phe Arg
      165          170          175
Trp Thr Lys Ser Phe Thr Leu Ile Leu Gln Ala Leu Asp Met Tyr Asn
      180          185          190
Thr Ser Tyr Pro Asp Ala Glu Arg Leu Ile Glu Glu Thr Ser Tyr Ser
      195          200          205
Gly Val Ile Leu Pro Ser Pro Glu Trp Lys Thr Leu Asp His Ile Gly
      210          215          220
Arg Asn Ala Arg Ile Thr Tyr Arg Val Arg Val Gln Cys Ala Val Thr
      225          230          235          240
Tyr Tyr Asn Thr Thr Cys Thr Thr Phe Cys Arg Pro Arg Asp Asp Gln
      245          250          255
Phe Gly His Tyr Ala Cys Gly Ser Glu Gly Gln Lys Leu Cys Leu Asn
      260          265          270
Gly Trp Gln Gly Val Asn Cys Glu Glu Ala Ile Cys Lys Ala Gly Cys
      275          280          285
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Asp Pro Val His Gly  
290

<210> 5

<211> 267

<212> DNA

<213> Homo sapiens

<220>

<223> Humna Notch (portion)

<400> 5

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cggtggactt ccttcgtgta ttggtgggag ccctcgggaa cgggggggtaa cactgaaagg 60
tcgagtaccc atttccgtca taacgggttg gtcgccccct aggggtcggga gtcagggtgga 120
cgggaggtcg acaacgcccg ggggacgggt ggtacatggt gtaaggctctt taccggaccg 180
ggcaaacggg tcacaccgaa aggggtgaac ggtaactacg gggtcgtcct gcccgccat 240
cgagtctggt aagaggggtcg ccttaag                                     267
```

<210> 6

<211> 574

<212> DNA

<213> Homo Sapiens

<220>

<221> misc\_feature

<222> 399

<223> n = A,T,C or G

<220>

<223> Humna Notch (portion)

<400> 6

```
gaattccttc cattatacgt gacttttctg aaactgtagc caccctagtg tctctaactc 60
cctctggagt ttgtcagctt tggctctttc aaagagcagg ctctcttcaa gctccttaat 120
gcgggcatgc tccagtttgg tctgcgtctc aagatcacct ttggtaattg attcttcttc 180
aaccgggaac tgaaggctgg ctctcaccct ctaggcagag caggaattcc gaggtggatg 240
tgttagatgt gaatgtccgt ggcccagatg gctgcacccc attgatgttg gcttctctcc 300
gaggaggcag ctcagatttg agtgatgaag atgaagatgc agaggactgt tctgctaaca 360
tcatcacaga cttggtctac cagggtgccg gcctccagnc cagacagacc ggactgggtga 420
gatggccctg caccttgcat cccgctactc acgggctgat gctgccaagc gtctcctgga 480
tgcaggtgca gatgccaatg cccaggacaa catggggcgc tgtccactcc atgctgcagt 540
ggcacgtgat gccaaaggtgt attcagatct gtta 574
```

<210> 7

<211> 295

<212> DNA

<213> Homo Sapiens

<220>

<223> Humna Notch (portion)

<400> 7

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tccagattct gattcgcaac cgagtaactg atctagatgc caggatgaat gatggacta 60
caccctgat cctggctgcc cgctggctg tggagggaat ggtggcagaa ctgatcaact 120
gccaagcgga tgtgaatgca gtggatgacc atggaaaatc tgctcttcac tgggcagctg 180
ctgtcaataa tgtggaggca actcttttgt tgttgaaaaa tggggccaac cgagacatgc 240
aggacaacaa ggaagagaca cctctgtttc ttgtgccccg ggaggagcta taagc 295
```

<210> 8

<211> 248

<212> DNA

<213> Homo Sapiens

<220>

<223> Humna Notch (portion)

<400> 8

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gaattccatt caggaggaaa ggggtggggag agaagcaggc acccactttc ccgtggctgg 60
actcgttccc aggtggctcc accggcagct gtgaccgccg cagggtggggg cggagtgcc 120
ttcagaaaat tccagaaaag ccctacccca actcggacgg caacgtcaca cccgtgggta 180
gcaactggca cacaacacgc cagcgtgtct ggggcacggg gggatggcac cccctgcagg 240
cagagctg 248
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<210> 9

<211> 323

<212> DNA

<213> Homo Sapiens

<220>

<221> misc\_feature

<222> 38, 39, 263, 264, 265, 283, 285, 306

<223> n = A,T,C or G

<220>

<223> Humna Notch (portion)

<400> 9

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accagtacga acatttaggc tcagtacggg aggtccatgg ccaagactag gagacgtagg 120
gagctacagg tcccgctcgc taaactcggg ccactgaaac ctccgggtcga cagtcgggtaa 180
gcgaacaaga gggccagatc ttagagaagg tgctcgccggc agactcgggc tcgggtcagg 240
cggccttaag gacgtcgggc ccnnnaggtg atcaagatct cgncncggcg ggcgccacct 300
cgaggncgaa aacaaggga atc 323
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<210> 10

<211> 3234

<212> DNA

<213> Homo Sapiens

<220>

<221> CDS

<222> (1)...(3234)

<223> Human Notch contained in Plasmid cDNA clone hN3k

<400> 10

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tgc cag gag gac gcg ggc aac aag gtc tgc agc ctg cag tgc aac aac 48
Cys Gln Glu Asp Ala Gly Asn Lys Val Cys Ser Leu Gln Cys Asn Asn
1 5 10 15

cac gcg tgc ggc tgg gac ggc ggt gac tgc tcc ctc aac ttc aat gac 96
His Ala Cys Gly Trp Asp Gly Gly Asp Cys Ser Leu Asn Phe Asn Asp
20 25 30

ccc tgg aag aac tgc acg cag tct ctg cag tgc tgg aag tac ttc agt 144
Pro Trp Lys Asn Cys Thr Gln Ser Leu Gln Cys Trp Lys Tyr Phe Ser
35 40 45

gac ggc cac tgt gac agc cag tgc aac tca gcc ggc tgc ctc ttc gac 192
Asp Gly His Cys Asp Ser Gln Cys Asn Ser Ala Gly Cys Leu Phe Asp
50 55 60

ggc ttt gac tgc cag cgt gcg gaa ggc cag tgc aac ccc ctg tac gac 240
Gly Phe Asp Cys Gln Arg Ala Glu Gly Gln Cys Asn Pro Leu Tyr Asp
65 70 75 80

cag tac tgc aag gac cac ttc agc gac ggg cac tgc gac cag ggc tgc 288
Gln Tyr Cys Lys Asp His Phe Ser Asp Gly His Cys Asp Gln Gly Cys
85 90 95

aac agc gcg gag tgc gag tgg gac ggg ctg gac tgt gcg gag cat gta 336
Asn Ser Ala Glu Cys Glu Trp Asp Gly Leu Asp Cys Ala Glu His Val
100 105 110

ccc gag agg ctg gcg gcc ggc acg ctg gtg gtg gtg gtg ctg atg ccg 384
Pro Glu Arg Leu Ala Ala Gly Thr Leu Val Val Val Val Leu Met Pro
115 120 125

ccg gag cag ctg cgc aac agc tcc ttc cac ttc ctg cgg gag ctc agc 432
Pro Glu Gln Leu Arg Asn Ser Ser Phe His Phe Leu Arg Glu Leu Ser
130 135 140

cgc gtg ctg cac acc aac gtg gtc ttc aag cgt gac gca cac ggc cag 480
Arg Val Leu His Thr Asn Val Val Phe Lys Arg Asp Ala His Gly Gln
```

145	150	155	160	
cag atg atc ttc ccc tac tac ggc cgc gag gag gag ctg cgc aag cac				528
Gln Met Ile Phe Pro Tyr Tyr Gly Arg Glu Glu Glu Leu Arg Lys His	165	170	175	
ccc atc aag cgt gcc gcc gag ggc tgg gcc gca cct gac gcc ctg ctg				576
Pro Ile Lys Arg Ala Ala Glu Gly Trp Ala Ala Pro Asp Ala Leu Leu	180	185	190	
ggc cag gtg aag gcc tcg ctg ctc cct ggt ggc agc gag ggt ggg cgg				624
Gly Gln Val Lys Ala Ser Leu Leu Pro Gly Gly Ser Glu Gly Gly Arg	195	200	205	
cgg cgg agg gag ctg gac ccc atg gac gtc cgc ggc tcc atc gtc tac				672
Arg Arg Arg Glu Leu Asp Pro Met Asp Val Arg Gly Ser Ile Val Tyr	210	215	220	
ctg gag att gac aac cgg cag tgt gtg cag gcc tcc tcg cag tgc ttc				720
Leu Glu Ile Asp Asn Arg Gln Cys Val Gln Ala Ser Ser Gln Cys Phe	225	230	235	240
cag agt gcc acc gac gtg gcc gca ttc ctg gga gcg ctc gcc tcg ctg				768
Gln Ser Ala Thr Asp Val Ala Ala Phe Leu Gly Ala Leu Ala Ser Leu	245	250	255	
ggc agc ctc aac atc ccc tac aag atc gag gcc gtg cag agt gag acc				816
Gly Ser Leu Asn Ile Pro Tyr Lys Ile Glu Ala Val Gln Ser Glu Thr	260	265	270	
gtg gag ccg ccc ccg ccg gcg cag ctg cac ttc atg tac gtg gcg gcg				864
Val Glu Pro Pro Pro Pro Ala Gln Leu His Phe Met Tyr Val Ala Ala	275	280	285	
gcc gcc ttt gtg ctt ctg ttc ttc gtg ggc tgc ggg gtg ctg ctg tcc				912
Ala Ala Phe Val Leu Leu Phe Phe Val Gly Cys Gly Val Leu Leu Ser	290	295	300	
cgc aag cgc cgg cgg cag cat ggc cag ctc tgg ttc cct gag ggc ttc				960
Arg Lys Arg Arg Arg Gln His Gly Gln Leu Trp Phe Pro Glu Gly Phe	305	310	315	320
aaa gtg tct gag gcc agc aag aag aag cgg cgg gag ccc ctc ggc gag				1008
Lys Val Ser Glu Ala Ser Lys Lys Lys Arg Arg Glu Pro Leu Gly Glu	325	330	335	
gac tcc gtg ggc ctc aag ccc ctg aag aac gct tca gac ggt gcc ctc				1056
Asp Ser Val Gly Leu Lys Pro Leu Lys Asn Ala Ser Asp Gly Ala Leu	340	345	350	
atg gac gac aac cag aat gag tgg ggg gac gag gac ctg gag acc aag				1104
Met Asp Asp Asn Gln Asn Glu Trp Gly Asp Glu Asp Leu Glu Thr Lys	355	360	365	
aag ttc cgg ttc gag gag ccc gtg gtt ctg cct gac ctg gac gac cag				1152
Lys Phe Arg Phe Glu Glu Pro Val Val Leu Pro Asp Leu Asp Asp Gln	370	375	380	
aca gac cac cgg cag tgg act cag cag cac ctg gat gcc gct gac ctg				1200
Thr Asp His Arg Gln Trp Thr Gln Gln His Leu Asp Ala Ala Asp Leu	385	390	395	400

cgc atg tct gcc atg gcc ccc aca ccg ccc cag ggt gag gtt gac gcc	1248
Arg Met Ser Ala Met Ala Pro Thr Pro Pro Gln Gly Glu Val Asp Ala	
405 410 415	
gac tgc atg gac gtc aat gtc cgc ggg cct gat ggc ttc acc ccg ctc	1296
Asp Cys Met Asp Val Asn Val Arg Gly Pro Asp Gly Phe Thr Pro Leu	
420 425 430	
atg atc gcc tcc tgc agc ggg ggc ggc ctg gag acg ggc aac agc gag	1344
Met Ile Ala Ser Cys Ser Gly Gly Gly Leu Glu Thr Gly Asn Ser Glu	
435 440 445	
gaa gag gag gac gcg ccg gcc gtc atc tcc gac ttc atc tac cag gcc	1392
Glu Glu Glu Asp Ala Pro Ala Val Ile Ser Asp Phe Ile Tyr Gln Gly	
450 455 460	
gcc agc ctg cac aac cag aca gac cgc acg ggc gag acc gcc ttg cac	1440
Ala Ser Leu His Asn Gln Thr Asp Arg Thr Gly Glu Thr Ala Leu His	
465 470 475 480	
ctg gcc gcc cgc tac tca cgc tct gat gcc gcc aag cgc ctg ctg gag	1488
Leu Ala Ala Arg Tyr Ser Arg Ser Asp Ala Ala Lys Arg Leu Leu Glu	
485 490 495	
gcc agc gca gat gcc aac atc cag gac aac atg ggc cgc acc ccg ctg	1536
Ala Ser Ala Asp Ala Asn Ile Gln Asp Asn Met Gly Arg Thr Pro Leu	
500 505 510	
cat gcg gct gtg tct gcc gac gca caa ggt gtc ttc cag atc ctg atc	1584
His Ala Ala Val Ser Ala Asp Ala Gln Gly Val Phe Gln Ile Leu Ile	
515 520 525	
cgg aac cga gcc aca gac ctg gat gcc cgc atg cat gat ggc acg acg	1632
Arg Asn Arg Ala Thr Asp Leu Asp Ala Arg Met His Asp Gly Thr Thr	
530 535 540	
cca ctg atc ctg gct gcc cgc ctg gcc gtg gag ggc atg ctg gag gac	1680
Pro Leu Ile Leu Ala Ala Arg Leu Ala Val Glu Gly Met Leu Glu Asp	
545 550 555 560	
ctc atc aac tca cac gcc gac gtc aac gcc gta gat gac ctg ggc aag	1728
Leu Ile Asn Ser His Ala Asp Val Asn Ala Val Asp Asp Leu Gly Lys	
565 570 575	
tcc gcc ctg cac tgg gcc gcc gcc gtg aac aat gtg gat gcc gca gtt	1776
Ser Ala Leu His Trp Ala Ala Ala Val Asn Asn Val Asp Ala Ala Val	
580 585 590	
gtg ctc ctg aag aac ggg gct aac aaa gat atg cag aac aac agg gag	1824
Val Leu Leu Lys Asn Gly Ala Asn Lys Asp Met Gln Asn Asn Arg Glu	
595 600 605	
gag aca ccc ctg ttt ctg gcc gcc cgg gag ggc agc tac gag acc gcc	1872
Glu Thr Pro Leu Phe Leu Ala Ala Arg Glu Gly Ser Tyr Glu Thr Ala	
610 615 620	
aag gtg ctg ctg gac cac ttt gcc aac cgg gac atc acg gat cat atg	1920
Lys Val Leu Leu Asp His Phe Ala Asn Arg Asp Ile Thr Asp His Met	
625 630 635 640	

gac cgc ctg ccg cgc gac atc gca cag gag cgc atg cat cac gac atc	1968
Asp Arg Leu Pro Arg Asp Ile Ala Gln Glu Arg Met His His Asp Ile	
645 650 655	
gtg agg ctg ctg gac gag tac aac ctg gtg cgc agc ccg cag ctg cac	2016
Val Arg Leu Leu Asp Glu Tyr Asn Leu Val Arg Ser Pro Gln Leu His	
660 665 670	
gga gcc ccg ctg ggg ggc acg ccc acc ctg tcg ccc ccg ctc tgc tcg	2064
Gly Ala Pro Leu Gly Gly Thr Pro Thr Leu Ser Pro Pro Leu Cys Ser	
675 680 685	
ccc aac ggc tac ctg ggc agc ctc aag ccc ggc gtg cag ggc aag aag	2112
Pro Asn Gly Tyr Leu Gly Ser Leu Lys Pro Gly Val Gln Gly Lys Lys	
690 695 700	
gtc cgc aag ccc agc agc aaa ggc ctg gcc tgt gga agc aag gag gcc	2160
Val Arg Lys Pro Ser Ser Lys Gly Leu Ala Cys Gly Ser Lys Glu Ala	
705 710 715 720	
aag gac ctc aag gca cgg agg aag aag tcc cag gat ggc aag ggc tgc	2208
Lys Asp Leu Lys Ala Arg Arg Lys Lys Ser Gln Asp Gly Lys Gly Cys	
725 730 735	
ctg ctg gac agc tcc ggc atg ctc tcg ccc gtg gac tcc ctg gag tca	2256
Leu Leu Asp Ser Ser Gly Met Leu Ser Pro Val Asp Ser Leu Glu Ser	
740 745 750	
ccc cat ggc tac ctg tca gac gtg gcc tcg ccg cca ctg ctg ccc tcc	2304
Pro His Gly Tyr Leu Ser Asp Val Ala Ser Pro Pro Leu Leu Pro Ser	
755 760 765	
ccg ttc cag cag tct ccg tcc gtg ccc ctc aac cac ctg cct ggg atg	2352
Pro Phe Gln Gln Ser Pro Ser Val Pro Leu Asn His Leu Pro Gly Met	
770 775 780	
ccc gac acc cac ctg ggc atc ggg cac ctg aac gtg gcg gcc aag ccc	2400
Pro Asp Thr His Leu Gly Ile Gly His Leu Asn Val Ala Ala Lys Pro	
785 790 795 800	
gag atg gcg gcg ctg ggt ggg ggc ggc cgg ctg gcc ttt gag act ggc	2448
Glu Met Ala Ala Leu Gly Gly Gly Gly Arg Leu Ala Phe Glu Thr Gly	
805 810 815	
cca cct cgt ctc tcc cac ctg cct gtg gcc tct ggc acc agc acc gtc	2496
Pro Pro Arg Leu Ser His Leu Pro Val Ala Ser Gly Thr Ser Thr Val	
820 825 830	
ctg ggc tcc agc agc gga ggg gcc ctg aat ttc act gtg ggc ggg tcc	2544
Leu Gly Ser Ser Gly Gly Ala Leu Asn Phe Thr Val Gly Gly Ser	
835 840 845	
acc agt ttg aat ggt caa tgc gag tgg ctg tcc cgg ctg cag agc ggc	2592
Thr Ser Leu Asn Gly Gln Cys Glu Trp Leu Ser Arg Leu Gln Ser Gly	
850 855 860	
atg gtg ccg aac caa tac aac cct ctg cgg ggg agt gtg gca cca ggc	2640
Met Val Pro Asn Gln Tyr Asn Pro Leu Arg Gly Ser Val Ala Pro Gly	
865 870 875 880	
ccc ctg agc aca cag gcc ccc tcc ctg cag cat ggc atg gta ggc ccg	2688

Pro	Leu	Ser	Thr	Gln	Ala	Pro	Ser	Leu	Gln	His	Gly	Met	Val	Gly	Pro		
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ctg	cac	agt	agc	ctt	gct	gcc	agc	gcc	ctg	tcc	cag	atg	atg	agc	tac	2736	
Leu	His	Ser	Ser	Leu	Ala	Ala	Ser	Ala	Leu	Ser	Gln	Met	Met	Ser	Tyr		
			900					905					910				
cag	ggc	ctg	ccc	agc	acc	cgg	ctg	gcc	acc	cag	cct	cac	ctg	gtg	cag	2784	
Gln	Gly	Leu	Pro	Ser	Thr	Arg	Leu	Ala	Thr	Gln	Pro	His	Leu	Val	Gln		
		915					920					925					
acc	cag	cag	gtg	cag	cca	caa	aac	tta	cag	atg	cag	cag	cag	aac	ctg	2832	
Thr	Gln	Gln	Val	Gln	Pro	Gln	Asn	Leu	Gln	Met	Gln	Gln	Gln	Asn	Leu		
	930					935					940						
cag	cca	gca	aac	atc	cag	cag	cag	caa	agc	ctg	cag	ccg	cca	cca	cca	2880	
Gln	Pro	Ala	Asn	Ile	Gln	Gln	Gln	Gln	Ser	Leu	Gln	Pro	Pro	Pro	Pro		
945					950				955						960		
cca	cca	cag	ccg	cac	ctt	ggc	gtg	agc	tca	gca	gcc	agc	ggc	cac	ctg	2928	
Pro	Pro	Gln	Pro	His	Leu	Gly	Val	Ser	Ser	Ala	Ala	Ser	Gly	His	Leu		
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ggc	cgg	agc	ttc	ctg	agt	gga	gag	ccg	agc	cag	gca	gac	gtg	cag	cca	2976	
Gly	Arg	Ser	Phe	Leu	Ser	Gly	Glu	Pro	Ser	Gln	Ala	Asp	Val	Gln	Pro		
			980					985					990				
ctg	ggc	ccc	agc	agc	ctg	gcg	gtg	cac	act	att	ctg	ccc	cag	gag	agc	3024	
Leu	Gly	Pro	Ser	Ser	Leu	Ala	Val	His	Thr	Ile	Leu	Pro	Gln	Glu	Ser		
		995					1000					1005					
ccc	gcc	ctg	ccc	acg	tcg	ctg	cca	tcc	tcg	ctg	gtc	cca	ccc	gtg	acc	3072	
Pro	Ala	Leu	Pro	Thr	Ser	Leu	Pro	Ser	Ser	Leu	Val	Pro	Pro	Val	Thr		
	1010					1015					1020						
gca	gcc	cag	ttc	ctg	acg	ccc	ccc	tcg	cag	cac	agc	tac	tcc	tcg	cct	3120	
Ala	Ala	Gln	Phe	Leu	Thr	Pro	Pro	Ser	Gln	His	Ser	Tyr	Ser	Ser	Pro		
1025					1030				1035						1040		
gtg	gac	aac	acc	ccc	agc	cac	cag	cta	cag	gtg	cct	gtt	cct	gta	atg	3168	
Val	Asp	Asn	Thr	Pro	Ser	His	Gln	Leu	Gln	Val	Pro	Val	Pro	Val	Met		
				1045				1050						1055			
gta	atg	atc	cga	tct	tcg	gat	cct	tct	aaa	ggc	tca	tca	att	ttg	atc	3216	
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<210> 11

<211> 1078

<212> PRT

<213> Homo Sapiens

<220>

<223> Human Notch contained in Plasmid cDNA clone hn3k

<400> 11

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Pro	Trp	Lys	Asn	Cys	Thr	Gln	Ser	Leu	Gln	Cys	Trp	Lys	Tyr	Phe	Ser		
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Arg	Val	Leu	His	Thr	Asn	Val	Val	Phe	Lys	Arg	Asp	Ala	His	Gly	Gln		
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Ala	Ser	Ala	Asp	Ala	Asn	Ile	Gln	Asp	Asn	Met	Gly	Arg	Thr	Pro	Leu	
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His	Ala	Ala	Val	Ser	Ala	Asp	Ala	Gln	Gly	Val	Phe	Gln	Ile	Leu	Ile	
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Pro	Leu	Ile	Leu	Ala	Ala	Arg	Leu	Ala	Val	Glu	Gly	Met	Leu	Glu	Asp	
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<210> 13

<211> 657

<212> PRT

<213> Homo Sapiens

<220>

<223> Human Notch contained in Plasmid cDNA clone hn5k

<400> 13

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Thr	Asp	His	Met	Asp	Arg	Leu	Pro	Arg	Asp	Val	Ala	Arg	Asp	Arg	Met
225					230					235					240
His	His	Asp	Ile	Val	Arg	Leu	Leu	Asp	Glu	Tyr	Asn	Val	Thr	Pro	Ser
				245					250						255
Pro	Pro	Gly	Thr	Val	Leu	Thr	Ser	Ala	Leu	Ser	Pro	Val	Ile	Cys	Gly
			260					265					270		
Pro	Asn	Arg	Ser	Phe	Leu	Ser	Leu	Lys	His	Thr	Pro	Met	Gly	Lys	Lys
		275					280					285			
Ser	Arg	Arg	Pro	Ser	Ala	Lys	Ser	Thr	Met	Pro	Thr	Ser	Leu	Pro	Asn
	290					295					300				
Leu	Ala	Lys	Glu	Ala	Lys	Asp	Ala	Lys	Gly	Ser	Arg	Arg	Lys	Lys	Ser
305					310					315					320
Leu	Ser	Glu	Lys	Val	Gln	Leu	Ser	Glu	Ser	Ser	Val	Thr	Leu	Ser	Pro
				325					330					335	
Val	Asp	Ser	Leu	Glu	Ser	Pro	His	Thr	Tyr	Val	Ser	Asp	Thr	Thr	Ser
			340					345					350		
Ser	Pro	Met	Ile	Thr	Ser	Pro	Gly	Ile	Leu	Gln	Ala	Ser	Pro	Asn	Pro
		355					360					365			
Met	Leu	Ala	Thr	Ala	Ala	Pro	Pro	Ala	Pro	Val	His	Ala	Gln	His	Ala
	370					375					380				
Leu	Ser	Phe	Ser	Asn	Leu	His	Glu	Met	Gln	Pro	Leu	Ala	His	Gly	Ala
385					390					395					400
Ser	Thr	Val	Leu	Pro	Ser	Val	Ser	Gln	Leu	Leu	Ser	His	His	His	Ile
				405					410					415	
Val	Ser	Pro	Gly	Ser	Gly	Ser	Ala	Gly	Ser	Leu	Ser	Arg	Leu	His	Pro
			420					425					430		
Val	Pro	Val	Pro	Ala	Asp	Trp	Met	Asn	Arg	Met	Glu	Val	Asn	Glu	Thr
		435					440					445			
Gln	Tyr	Asn	Glu	Met	Phe	Gly	Met	Val	Leu	Ala	Pro	Ala	Glu	Gly	Thr
	450					455					460				
His	Pro	Gly	Ile	Ala	Pro	Gln	Ser	Arg	Pro	Pro	Glu	Gly	Lys	His	Ile
465					470					475					480
Thr	Thr	Pro	Arg	Glu	Pro	Leu	Pro	Pro	Ile	Val	Thr	Phe	Gln	Leu	Ile

				485					490					495			
Pro	Lys	Gly	Ser	Ile	Ala	Gln	Pro	Ala	Gly	Ala	Pro	Gln	Pro	Gln	Ser		
			500					505					510				
Thr	Cys	Pro	Pro	Ala	Val	Ala	Gly	Pro	Leu	Pro	Thr	Met	Tyr	Gln	Ile		
		515					520					525					
Pro	Glu	Met	Ala	Arg	Leu	Pro	Ser	Val	Ala	Phe	Pro	Thr	Ala	Met	Met		
	530					535					540						
Pro	Gln	Gln	Asp	Gly	Gln	Val	Ala	Gln	Thr	Ile	Leu	Pro	Ala	Tyr	His		
545					550					555					560		
Pro	Phe	Pro	Ala	Ser	Val	Gly	Lys	Tyr	Pro	Thr	Pro	Pro	Ser	Gln	His		
			565						570					575			
Ser	Tyr	Ala	Ser	Ser	Asn	Ala	Ala	Glu	Arg	Thr	Pro	Ser	His	Ser	Gly		
		580						585					590				
His	Leu	Gln	Gly	Glu	His	Pro	Tyr	Leu	Thr	Pro	Ser	Pro	Glu	Ser	Pro		
	595					600						605					
Asp	Gln	Trp	Ser	Ser	Ser	Ser	Pro	His	Ser	Ala	Ser	Asp	Trp	Ser	Asp		
	610					615					620						
Val	Thr	Thr	Ser	Pro	Thr	Pro	Gly	Gly	Ala	Gly	Gly	Gly	Gln	Arg	Gly		
625					630					635					640		
Pro	Gly	Thr	His	Met	Ser	Glu	Pro	Pro	His	Asn	Asn	Met	Gln	Val	Tyr		
				645					650					655			

Ala

<210> 14  
 <211> 77  
 <212> PRT  
 <213> Drosophila

<220>

<223> Drosophila Notch

<400> 14																	
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Ile	Cys	Val	Asn	Thr	Pro	Gly	Ser	Tyr	Arg	Cys	Asn	Cys	Ser	Gln	Gly		
		20					25						30				
Phe	Thr	Gly	Pro	Arg	Cys	Glu	Thr	Asn	Ile	Asn	Glu	Cys	Glu	Ser	His		
	35					40					45						
Pro	Cys	Gln	Asn	Glu	Gly	Ser	Cys	Leu	Asp	Asp	Pro	Gly	Thr	Phe	Arg		
	50				55						60						
Cys	Val	Cys	Met	Pro	Gly	Phe	Thr	Gly	Thr	Gln	Cys	Glu					
65					70					75							

<210> 15  
 <211> 78  
 <212> PRT  
 <213> Xenopus

<220>

<223> Xenopus Notch

<400> 15																	
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Gly	Arg	Cys	Thr	Asn	Thr	Leu	Gly	Ser	Phe	Gln	Cys	Asn	Cys	Pro	Gln		
		20					25						30				

Gly	Tyr	Ala	Gly	Pro	Arg	Cys	Glu	Ile	Asp	Val	Asn	Glu	Cys	Leu	Ser
	35						40					45			
Asn	Pro	Cys	Gln	Asn	Asp	Ser	Thr	Cys	Leu	Asp	Gln	Ile	Gly	Glu	Phe
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Gln	Cys	Ile	Cys	Met	Pro	Gly	Tyr	Glu	Gly	Leu	Tyr	Cys	Glu		
65					70					75					

<210> 16  
 <211> 654  
 <212> PRT  
 <213> Xenopus

<220>  
 <223> Xenopus Notch

<400> 16

Thr	Pro	Pro	Gln	Gly	Glu	Ile	Glu	Ala	Asp	Cys	Met	Asp	Val	Asn	Val
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Arg	Gly	Pro	Asp	Gly	Phe	Thr	Pro	Leu	Met	Ile	Ala	Ser	Cys	Ser	Gly
			20					25					30		
Gly	Gly	Leu	Glu	Thr	Gly	Asn	Ser	Glu	Glu	Glu	Glu	Asp	Ala	Ser	Ala
		35					40					45			
Asn	Met	Ile	Ser	Asp	Phe	Ile	Gly	Gln	Gly	Ala	Gln	Leu	His	Asn	Gln
	50					55					60				
Thr	Asp	Arg	Thr	Gly	Glu	Thr	Ala	Leu	His	Leu	Ala	Ala	Arg	Tyr	Ala
65					70					75					80
Arg	Ala	Asp	Ala	Ala	Lys	Arg	Leu	Leu	Glu	Ser	Ser	Ala	Asp	Ala	Asn
				85					90					95	
Val	Gln	Asp	Asn	Met	Gly	Arg	Thr	Pro	Leu	His	Ala	Ala	Val	Ala	Ala
			100					105					110		
Asp	Ala	Gln	Gly	Val	Phe	Gln	Ile	Leu	Ile	Arg	Asn	Arg	Ala	Thr	Asp
		115					120					125			
Leu	Asp	Ala	Arg	Met	Phe	Asp	Gly	Thr	Thr	Pro	Leu	Ile	Leu	Ala	Ala
	130					135					140				
Arg	Leu	Ala	Val	Glu	Gly	Met	Val	Glu	Glu	Leu	Ile	Asn	Ala	His	Ala
145					150					155					160
Asp	Val	Asn	Ala	Val	Asp	Glu	Phe	Gly	Lys	Ser	Ala	Leu	His	Trp	Ala
				165				170						175	
Ala	Ala	Val	Asn	Asn	Val	Asp	Ala	Ala	Val	Leu	Leu	Lys	Asn	Ser	
			180					185					190		
Ala	Asn	Lys	Asp	Met	Gln	Asn	Asn	Lys	Glu	Glu	Thr	Ser	Leu	Phe	Leu
		195					200					205			
Ala	Ala	Arg	Glu	Gly	Ser	Tyr	Glu	Thr	Ala	Lys	Val	Leu	Leu	Asp	His
	210					215					220				
Tyr	Ala	Asn	Arg	Asp	Ile	Thr	Asp	His	Met	Asp	Arg	Leu	Pro	Arg	Asp
225					230					235					240
Ile	Ala	Gln	Glu	Arg	Met	His	His	Asp	Ile	Val	His	Leu	Leu	Asp	Glu
				245					250					255	
Tyr	Asn	Leu	Val	Lys	Ser	Pro	Thr	Leu	His	Asn	Gly	Pro	Leu	Gly	Ala
		260						265					270		
Thr	Thr	Leu	Ser	Pro	Pro	Ile	Cys	Ser	Pro	Asn	Gly	Tyr	Met	Gly	Asn
		275					280					285			
Met	Lys	Pro	Ser	Val	Gln	Ser	Lys	Lys	Ala	Arg	Lys	Pro	Ser	Ile	Lys
	290					295					300				
Gly	Asn	Gly	Cys	Lys	Glu	Ala	Lys	Glu	Leu	Lys	Ala	Arg	Arg	Lys	Lys
305					310					315					320
Ser	Gln	Asp	Gly	Lys	Thr	Thr	Leu	Leu	Asp	Ser	Gly	Ser	Ser	Gly	Val
				325					330					335	
Leu	Ser	Pro	Val	Asp	Ser	Leu	Glu	Ser	Thr	His	Gly	Tyr	Leu	Ser	Asp
			340					345					350		





Gln	Asp	Asn	Met	Gly	Arg	Thr	Pro	Leu	His	Ala	Ala	Val	Ser	Ala	Asp	
			100					105					110			
Ala	Gln	Gly	Val	Phe	Gln	Ile	Leu	Leu	Arg	Asn	Arg	Ala	Thr	Asp	Leu	
		115					120					125				
Asp	Ala	Arg	Met	His	Asp	Gly	Thr	Thr	Pro	Leu	Ile	Leu	Ala	Ala	Arg	
	130					135					140					
Leu	Ala	Val	Glu	Gly	Met	Leu	Glu	Asp	Leu	Ile	Asn	Ser	His	Ala	Asp	
145					150					155					160	
Val	Asn	Ala	Val	Asp	Asp	Leu	Gly	Lys	Ser	Ala	Leu	His	Trp	Ala	Ala	
				165					170					175		
Ala	Val	Asn	Asn	Val	Asp	Ala	Ala	Val	Val	Leu	Leu	Lys	Asn	Gly	Ala	
			180					185					190			
Asn	Lys	Asp	Met	Gln	Asn	Asn	Lys	Glu	Glu	Thr	Pro	Leu	Phe	Leu	Ala	
	195						200					205				
Ala	Arg	Glu	Gly	Ser	Tyr	Glu	Thr	Ala	Lys	Val	Leu	Leu	Asp	His	Phe	
	210					215					220					
Ala	Asn	Arg	Asp	Ile	Thr	Asp	His	Met	Asp	Arg	Leu	Pro	Arg	Asp	Ile	
225					230				235						240	
Ala	Gln	Glu	Arg	Met	His	His	Asp	Ile	Val	Arg	Leu	Leu	Asp	Glu	Tyr	
				245					250					255		
Asn	Leu	Val	Arg	Ser	Pro	Gln	Leu	His	Gly	Thr	Ala	Leu	Gly	Gly	Thr	
		260						265					270			
Pro	Thr	Leu	Ser	Pro	Thr	Leu	Cys	Ser	Pro	Asn	Gly	Tyr	Leu	Gly	Asn	
		275					280					285				
Leu	Lys	Ser	Ala	Thr	Gln	Gly	Lys	Lys	Ala	Arg	Lys	Pro	Ser	Thr	Lys	
	290					295					300					
Gly	Leu	Ala	Cys	Ser	Ser	Lys	Glu	Ala	Lys	Asp	Leu	Lys	Ala	Arg	Arg	
305					310				315						320	
Lys	Lys	Ser	Gln	Asp	Gly	Lys	Gly	Cys	Leu	Leu	Asp	Ser	Ser	Ser	Met	
			325					330						335		
Leu	Ser	Pro	Val	Asp	Ser	Leu	Glu	Ser	Pro	His	Gly	Tyr	Leu	Ser	Asp	
		340						345					350			
Val	Ala	Ser	Pro	Pro	Leu	Pro	Ser	Pro	Phe	Gln	Gln	Ser	Pro	Ser	Met	
		355					360					365				
Pro	Leu	Ser	His	Leu	Pro	Gly	Met	Pro	Asp	Thr	His	Leu	Gly	Ile	Ser	
	370					375					380					
His	Leu	Asn	Val	Ala	Ala	Lys	Pro	Glu	Met	Ala	Ala	Leu	Ala	Gly	Gly	
385				390					395						400	
Ser	Arg	Leu	Ala	Phe	Glu	Pro	Pro	Pro	Pro	Arg	Leu	Ser	His	Leu	Pro	
			405						410					415		
Val	Ala	Ser	Ser	Ala	Ser	Thr	Val	Leu	Ser	Thr	Asn	Gly	Thr	Gly	Ala	
		420						425					430			
Met	Asn	Phe	Thr	Val	Gly	Ala	Pro	Ala	Ser	Leu	Asn	Gly	Gln	Cys	Glu	
	435					440					445					
Trp	Leu	Pro	Arg	Leu	Gln	Asn	Gly	Met	Val	Pro	Ser	Gln	Tyr	Asn	Pro	
	450					455					460					
Leu	Arg	Pro	Gly	Val	Thr	Pro	Gly	Thr	Leu	Ser	Thr	Gln	Ala	Ala	Gly	
465					470				475						480	
Leu	Gln	His	Gly	Met	Met	Ser	Pro	Ile	His	Ser	Ser	Leu	Ser	Thr	Asn	
				485					490					495		
Thr	Leu	Ser	Pro	Ile	Ile	Tyr	Gln	Gly	Leu	Pro	Asn	Thr	Arg	Leu	Ala	
		500					505					510				
Thr	Gln	Pro	His	Leu	Val	Gln	Thr	Gln	Gln	Val	Gln	Pro	Gln	Asn	Leu	
	515						520					525				
Gln	Ile	Gln	Pro	Gln	Asn	Leu	Gln	Pro	Pro	Ser	Gln	Pro	His	Leu	Ser	
	530					535					540					
Val	Ser	Ser	Ala	Ala	Asn	Gly	His	Leu	Gly	Arg	Ser	Phe	Leu	Ser	Gly	
545					550					555					560	
Glu	Pro	Ser	Gln	Ala	Asp	Val	Gln	Pro	Leu	Gly	Pro	Ser	Ser	Leu	Pro	
				565					570						575	

Val	His	Thr	Ile	Leu	Pro	Gln	Glu	Ser	Gln	Ala	Leu	Pro	Thr	Ser	Leu
			580					585					590		
Pro	Ser	Ser	Met	Val	Pro	Pro	Met	Thr	Thr	Thr	Gln	Phe	Leu	Thr	Pro
		595					600					605			
Pro	Ser	Gln	His	Ser	Tyr	Ser	Ser	Ser	Pro	Val	Asp	Asn	Thr	Pro	Ser
	610					615					620				
His	Gln	Leu	Gln	Val	Pro	Glu	His	Pro	Phe	Leu	Thr	Pro	Ser	Pro	Glu
625					630					635					640
Ser	Pro	Asp	Gln	Trp	Ser	Ser	Ser	Ser	Arg	His	Ser	Asn	Ile	Ser	Asp
			645						650					655	
Trp	Ser	Glu	Gly	Ile	Ser	Ser	Pro	Pro	Thr						
			660					665							

<210> 18  
 <211> 681  
 <212> PRT  
 <213> Rattus

<220>  
 <223> rat TAN-1

<400> 18

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Arg	Gly	Pro	Asp	Gly	Phe	Thr	Pro	Leu	Met	Ile	Ala	Ser	Cys	Ser	Gly
		20					25						30		
Gly	Gly	Leu	Glu	Thr	Gly	Asn	Ser	Glu	Glu	Glu	Glu	Asp	Ala	Pro	Ala
		35				40						45			
Val	Ile	Ser	Asp	Phe	Ile	Tyr	Gln	Gly	Ala	Ser	Leu	His	Asn	Gln	Thr
	50					55					60				
Asp	Arg	Thr	Gly	Glu	Thr	Ala	Leu	His	Leu	Ala	Ala	Arg	Tyr	Ser	Arg
65					70					75					80
Ser	Asp	Ala	Ala	Lys	Arg	Leu	Leu	Glu	Ala	Ser	Ala	Asp	Ala	Asn	Ile
				85					90					95	
Gln	Asp	Asn	Met	Gly	Arg	Thr	Pro	Leu	His	Ala	Ala	Val	Ser	Ala	Asp
			100					105					110		
Ala	Gln	Gly	Val	Phe	Gln	Ile	Leu	Ile	Arg	Asn	Arg	Ala	Thr	Asp	Leu
		115				120						125			
Asp	Ala	Arg	Met	His	Asp	Gly	Thr	Thr	Pro	Leu	Ile	Leu	Ala	Ala	Arg
	130					135					140				
Leu	Ala	Val	Glu	Gly	Met	Leu	Glu	Asp	Leu	Ile	Asn	Ser	His	Ala	Asp
145					150					155					160
Val	Asn	Ala	Val	Asp	Asp	Leu	Gly	Lys	Ser	Ala	Leu	His	Trp	Ala	Ala
				165					170					175	
Ala	Val	Asn	Asn	Val	Asp	Ala	Ala	Val	Val	Leu	Leu	Lys	Asn	Gly	Ala
			180					185					190		
Asn	Lys	Asp	Met	Gln	Asn	Asn	Arg	Glu	Glu	Thr	Pro	Leu	Phe	Leu	Ala
		195					200					205			
Ala	Arg	Glu	Gly	Ser	Tyr	Glu	Thr	Ala	Lys	Val	Leu	Leu	Asp	His	Phe
	210					215					220				
Ala	Asn	Arg	Asp	Ile	Thr	Asp	His	Met	Asp	Arg	Leu	Pro	Arg	Asp	Ile
225					230					235					240
Ala	Gln	Glu	Arg	Met	His	His	Asp	Ile	Val	Arg	Leu	Leu	Asp	Glu	Tyr
				245					250					255	
Asn	Leu	Val	Arg	Ser	Pro	Gln	Leu	His	Gly	Ala	Pro	Leu	Gly	Gly	Thr
			260					265					270		
Pro	Thr	Leu	Ser	Pro	Pro	Leu	Cys	Ser	Pro	Asn	Gly	Tyr	Leu	Gly	Ser
		275					280					285			
Leu	Lys	Pro	Gly	Val	Gln	Gly	Lys	Lys	Val	Arg	Lys	Pro	Ser	Ser	Lys
	290					295					300				

Gly Leu Ala Cys Gly Ser Lys Glu Ala Lys Asp Leu Lys Ala Arg Arg  
 305 310 315 320  
 Lys Lys Ser Gln Asp Gly Lys Gly Cys Leu Leu Asp Ser Ser Gly Met  
 325 330 335  
 Leu Ser Pro Val Asp Ser Leu Glu Ser Pro His Gly Tyr Leu Ser Asp  
 340 345 350  
 Val Ala Ser Pro Pro Leu Leu Pro Ser Pro Phe Gln Gln Ser Pro Ser  
 355 360 365  
 Val Pro Leu Asn His Leu Pro Gly Met Pro Asp Thr His Leu Gly Ile  
 370 375 380  
 Gly His Leu Asn Val Ala Ala Lys Pro Glu Met Ala Ala Leu Gly Gly  
 385 390 395 400  
 Gly Gly Arg Leu Ala Phe Glu Thr Gly Pro Arg Leu Ser His Leu  
 405 410 415  
 Pro Val Ala Ser Gly Thr Ser Thr Val Leu Gly Ser Ser Ser Gly Gly  
 420 425 430  
 Ala Leu Asn Phe Thr Val Gly Gly Ser Thr Ser Leu Asn Gly Gln Cys  
 435 440 445  
 Glu Trp Leu Ser Arg Leu Gln Ser Gly Met Val Pro Asn Gln Tyr Asn  
 450 455 460  
 Pro Leu Arg Gly Ser Val Ala Pro Gly Pro Leu Ser Thr Gln Ala Pro  
 465 470 475 480  
 Ser Leu Gln His Gly Met Val Gly Pro Leu His Ser Ser Leu Ala Ala  
 485 490 495  
 Ser Ala Leu Ser Gln Met Met Ser Tyr Gln Gly Leu Pro Ser Thr Arg  
 500 505 510  
 Leu Ala Thr Gln Pro His Leu Val Gln Thr Gln Gln Val Gln Pro Gln  
 515 520 525  
 Asn Leu Gln Met Gln Gln Gln Asn Leu Gln Pro Ala Asn Ile Gln Gln  
 530 535 540  
 Gln Gln Ser Leu Gln Pro Pro Pro Pro Gln Pro His Leu Gly  
 545 550 555 560  
 Val Ser Ser Ala Ala Ser Gly His Leu Gly Arg Ser Phe Leu Ser Gly  
 565 570 575  
 Glu Pro Ser Gln Ala Asp Val Gln Pro Leu Gly Pro Ser Ser Leu Ala  
 580 585 590  
 Val His Thr Ile Leu Pro Gln Glu Ser Pro Ala Leu Pro Thr Ser Leu  
 595 600 605  
 Pro Ser Ser Leu Val Pro Pro Val Thr Ala Ala Gln Phe Leu Thr Pro  
 610 615 620  
 Pro Ser Gln His Ser Tyr Ser Ser Pro Val Glu Asn Thr Pro Ser His  
 625 630 635 640  
 Gln Leu Gln Val Pro Glu His Pro Phe Leu Thr Pro Ser Pro Glu Ser  
 645 650 655  
 Pro Asp Gln Trp Ser Ser Ser Ser Pro His Ser Asn Val Ser Asp Trp  
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 675 680

<210> 19

<211> 2471

<212> PRT

<213> Homo Sapiens

<220>

<223> Human Notch protein encoded by the hN homolog (contained in part in plasmid hN5k)

<400> 19

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			20					25					30				
Glu	Pro	Cys	Val	Asn	Glu	Gly	Met	Cys	Val	Thr	Tyr	His	Asn	Gly	Thr		
		35					40					45					
Gly	Tyr	Cys	Lys	Cys	Pro	Glu	Gly	Phe	Leu	Gly	Glu	Tyr	Cys	Gln	His		
	50					55					60						
Arg	Asp	Pro	Cys	Glu	Lys	Asn	Arg	Cys	Gln	Asn	Gly	Gly	Thr	Cys	Val		
65					70				75						80		
Ala	Gln	Ala	Met	Leu	Gly	Lys	Ala	Thr	Cys	Arg	Cys	Ala	Ser	Gly	Phe		
				85					90					95			
Thr	Gly	Glu	Asp	Cys	Gln	Tyr	Ser	Thr	Ser	His	Pro	Cys	Phe	Val	Ser		
			100					105					110				
Arg	Pro	Cys	Leu	Asn	Gly	Gly	Thr	Cys	His	Met	Leu	Ser	Arg	Asp	Thr		
		115					120						125				
Tyr	Glu	Cys	Thr	Cys	Gln	Val	Gly	Phe	Thr	Gly	Lys	Glu	Cys	Gln	Trp		
	130					135					140						
Thr	Asp	Ala	Cys	Leu	Ser	His	Pro	Cys	Ala	Asn	Gly	Ser	Thr	Cys	Thr		
145					150					155					160		
Thr	Val	Ala	Asn	Gln	Phe	Ser	Cys	Lys	Cys	Leu	Thr	Gly	Phe	Thr	Gly		
				165					170					175			
Gln	Lys	Cys	Glu	Thr	Asp	Val	Asn	Glu	Cys	Asp	Ile	Pro	Gly	His	Cys		
		180						185					190				
Gln	His	Gly	Thr	Cys	Leu	Asn	Leu	Pro	Gly	Ser	Tyr	Gln	Cys	Gln			
	195					200					205						
Cys	Pro	Gln	Gly	Phe	Thr	Gly	Gln	Tyr	Cys	Asp	Ser	Leu	Tyr	Val	Pro		
	210					215				220							
Cys	Ala	Pro	Ser	Pro	Cys	Val	Asn	Gly	Gly	Thr	Cys	Arg	Gln	Thr	Gly		
225					230					235					240		
Asp	Phe	Thr	Phe	Glu	Cys	Asn	Cys	Leu	Pro	Gly	Phe	Glu	Gly	Ser	Thr		
				245					250					255			
Cys	Glu	Arg	Asn	Ile	Asp	Asp	Cys	Pro	Asn	His	Arg	Cys	Gln	Asn	Gly		
			260					265					270				
Gly	Val	Cys	Val	Asp	Gly	Val	Asn	Thr	Tyr	Asn	Cys	Arg	Cys	Pro	Pro		
	275						280					285					
Gln	Trp	Thr	Gly	Gln	Phe	Cys	Thr	Glu	Asp	Val	Asp	Glu	Cys	Leu	Leu		
	290					295					300						
Gln	Pro	Asn	Ala	Cys	Gln	Asn	Gly	Gly	Thr	Cys	Ala	Asn	Arg	Asn	Gly		
305					310					315					320		
Gly	Tyr	Gly	Cys	Val	Cys	Val	Asn	Gly	Trp	Ser	Gly	Asp	Asp	Cys	Ser		
			325						330					335			
Glu	Asn	Ile	Asp	Cys	Ala	Phe	Ala	Ser	Cys	Thr	Pro	Gly	Ser	Thr			
			340				345					350					
Cys	Ile	Asp	Arg	Val	Ala	Ser	Phe	Ser	Cys	Met	Cys	Pro	Glu	Gly	Lys		
	355						360					365					
Ala	Gly	Leu	Leu	Cys	His	Leu	Asp	Asp	Ala	Cys	Ile	Ser	Asn	Pro	Cys		
	370					375					380						
His	Lys	Gly	Ala	Leu	Cys	Asp	Thr	Asn	Pro	Leu	Asn	Gly	Gln	Tyr	Ile		
385					390					395					400		
Cys	Thr	Cys	Pro	Gln	Gly	Tyr	Lys	Gly	Ala	Asp	Cys	Thr	Glu	Asp	Val		
			405						410					415			
Asp	Glu	Cys	Ala	Met	Ala	Asn	Ser	Asn	Pro	Cys	Glu	His	Ala	Gly	Lys		
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Cys	Val	Asn	Thr	Asp	Gly	Ala	Phe	His	Cys	Glu	Cys	Leu	Lys	Gly	Tyr		
			435				440					445					
Ala	Gly	Pro	Arg	Cys	Glu	Met	Asp	Ile	Asn	Glu	Cys	His	Ser	Asp	Pro		
	450					455					460						
Cys	Gln	Asn	Asp	Ala	Thr	Cys	Leu	Asp	Lys	Ile	Gly	Gly	Phe	Thr	Cys		
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Leu	Cys	Met	Pro	Gly	Phe	Lys	Gly	Val	His	Cys	Glu	Leu	Glu	Ile	Asn		
				485					490					495			

Glu	Cys	Gln	Ser	Asn	Pro	Cys	Val	Asn	Asn	Gly	Gln	Cys	Val	Asp	Lys	500	505	510
Val	Asn	Arg	Phe	Gln	Cys	Leu	Cys	Pro	Pro	Gly	Phe	Thr	Gly	Pro	Val	515	520	525
Cys	Gln	Ile	Asp	Ile	Asp	Asp	Cys	Ser	Ser	Thr	Pro	Cys	Leu	Asn	Gly	530	535	540
Ala	Lys	Cys	Ile	Asp	His	Pro	Asn	Gly	Tyr	Glu	Cys	Gln	Cys	Ala	Thr	545	550	555
Gly	Phe	Thr	Gly	Val	Leu	Cys	Glu	Glu	Asn	Ile	Asp	Asn	Cys	Asp	Pro	565	570	575
Asp	Pro	Cys	His	His	Gly	Gln	Cys	Gln	Asp	Gly	Ile	Asp	Ser	Tyr	Thr	580	585	590
Cys	Ile	Cys	Asn	Pro	Gly	Tyr	Met	Gly	Ala	Ile	Cys	Ser	Asp	Gln	Ile	595	600	605
Asp	Glu	Cys	Tyr	Ser	Ser	Pro	Cys	Leu	Asn	Asp	Gly	Arg	Cys	Ile	Asp	610	615	620
Leu	Val	Asn	Gly	Tyr	Gln	Cys	Asn	Cys	Gln	Pro	Gly	Thr	Ser	Gly	Val	625	630	635
Asn	Cys	Glu	Ile	Asn	Phe	Asp	Asp	Cys	Ala	Ser	Asn	Pro	Cys	Ile	His	645	650	655
Gly	Ile	Cys	Met	Asp	Gly	Ile	Asn	Arg	Tyr	Ser	Cys	Val	Cys	Ser	Pro	660	665	670
Gly	Phe	Thr	Gly	Gln	Arg	Cys	Asn	Ile	Asp	Ile	Asp	Glu	Cys	Ala	Ser	675	680	685
Asn	Pro	Cys	Arg	Lys	Gly	Ala	Thr	Cys	Ile	Asn	Gly	Val	Asn	Gly	Phe	690	695	700
Arg	Cys	Ile	Cys	Pro	Glu	Gly	Pro	His	His	Pro	Ser	Cys	Tyr	Ser	Gln	705	710	715
Val	Asn	Glu	Cys	Leu	Ser	Asn	Pro	Cys	Ile	His	Gly	Asn	Cys	Thr	Gly	725	730	735
Gly	Leu	Ser	Gly	Tyr	Lys	Cys	Leu	Cys	Asp	Ala	Gly	Trp	Val	Gly	Ile	740	745	750
Asn	Cys	Glu	Val	Asp	Lys	Asn	Glu	Cys	Leu	Ser	Asn	Pro	Cys	Gln	Asn	755	760	765
Gly	Gly	Thr	Cys	Asp	Asn	Leu	Val	Asn	Gly	Tyr	Arg	Cys	Thr	Cys	Lys	770	775	780
Lys	Gly	Phe	Lys	Gly	Tyr	Asn	Cys	Gln	Val	Asn	Ile	Asp	Glu	Cys	Ala	785	790	795
Ser	Asn	Pro	Cys	Leu	Asn	Gln	Gly	Thr	Cys	Phe	Asp	Asp	Ile	Ser	Gly	805	810	815
Tyr	Thr	Cys	His	Cys	Val	Leu	Pro	Tyr	Thr	Gly	Lys	Asn	Cys	Gln	Thr	820	825	830
Val	Leu	Ala	Pro	Cys	Ser	Pro	Asn	Pro	Cys	Glu	Asn	Ala	Ala	Val	Cys	835	840	845
Lys	Glu	Ser	Pro	Asn	Phe	Glu	Ser	Tyr	Thr	Cys	Leu	Cys	Ala	Pro	Gly	850	855	860
Trp	Gln	Gly	Gln	Arg	Cys	Thr	Ile	Asp	Ile	Asp	Glu	Cys	Ile	Ser	Lys	865	870	875
Pro	Cys	Met	Asn	His	Gly	Leu	Cys	His	Asn	Thr	Gln	Gly	Ser	Tyr	Met	885	890	895
Cys	Glu	Cys	Pro	Pro	Gly	Phe	Ser	Gly	Met	Asp	Cys	Glu	Glu	Asp	Ile	900	905	910
Asp	Asp	Cys	Leu	Ala	Asn	Pro	Cys	Gln	Asn	Gly	Gly	Ser	Cys	Met	Asp	915	920	925
Gly	Val	Asn	Thr	Phe	Ser	Cys	Leu	Cys	Leu	Pro	Gly	Phe	Thr	Gly	Asp	930	935	940
Lys	Cys	Gln	Thr	Asp	Met	Asn	Glu	Cys	Leu	Ser	Glu	Pro	Cys	Lys	Asn	945	950	955
Gly	Gly	Thr	Cys	Ser	Asp	Tyr	Val	Asn	Ser	Tyr	Thr	Cys	Lys	Cys	Gln	965	970	975
Ala	Gly	Phe	Asp	Gly	Val	His	Cys	Glu	Asn	Asn	Ile	Asn	Glu	Cys	Thr			

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Glu	Ser	Ser	Cys	Phe	Asn	Gly	Gly	Thr	Cys	Val	Asp	Gly	Ile	Asn	Ser															
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Phe	Ser	Cys	Leu	Cys	Pro	Val	Gly	Phe	Thr	Gly	Ser	Phe	Cys	Leu	His															
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Glu	Ile	Asn	Glu	Cys	Ser	Ser	His	Pro	Cys	Leu	Asn	Glu	Gly	Thr	Cys															
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Val	Asp	Gly	Leu	Gly	Thr	Tyr	Arg	Cys	Ser	Cys	Pro	Leu	Gly	Tyr	Thr															
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Gly	Lys	Asn	Cys	Gln	Thr	Leu	Val	Asn	Leu	Cys	Ser	Arg	Ser	Pro	Cys															
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Cys	Pro	Ser	Gly	Trp	Ala	Gly	Ala	Tyr	Cys	Asp	Val	Pro	Asn	Val	Ser															
	1090					1095				1100																				
Cys	Asp	Ile	Ala	Ala	Ser	Arg	Arg	Gly	Val	Leu	Val	Glu	His	Leu	Cys															
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Gln	His	Ser	Gly	Val	Cys	Ile	Asn	Ala	Gly	Asn	Thr	His	Tyr	Cys	Gln															
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Cys	Pro	Leu	Gly	Tyr	Thr	Gly	Ser	Tyr	Cys	Glu	Glu	Gln	Leu	Asp	Glu															
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Gly	Gly	Tyr	Arg	Cys	Glu	Cys	Val	Pro	Gly	Tyr	Gln	Gly	Val	Asn	Cys															
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Glu	Tyr	Glu	Val	Asp	Glu	Cys	Gln	Asn	Gln	Pro	Cys	Gln	Asn	Gly	Gly															
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Thr	Cys	Ile	Asp	Leu	Val	Asn	His	Phe	Lys	Cys	Ser	Cys	Pro	Pro	Gly															
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Ile	Asn	Glu	Cys	Leu	Ser	Asn	Pro	Cys	Ser	Ser	Glu	Gly	Ser	Leu	Asp															
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Cys	Leu	Asn	Gly	Gly	Thr	Cys	Ala	Val	Ala	Ser	Asn	Met	Pro	Asp	Gly															
		1315					1320						1325																	
Phe	Ile	Cys	Arg	Cys	Pro	Pro	Gly	Phe	Ser	Gly	Ala	Arg	Cys	Gln	Ser															
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Ala	Ser	Gly	Pro	Arg	Cys	Phe	Cys	Pro	Ser	Pro	Arg	Asp	Cys	Glu	Ser															
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Gly	Cys	Ala	Ser	Ser	Pro	Cys	Gln	His	Gly	Gly	Ser	Cys	His	Pro	Gln															
		1380						1385					1390																	
Arg	Gln	Pro	Pro	Tyr	Tyr	Ser	Cys	Gln	Cys	Ala	Pro	Pro	Phe	Ser	Gly															
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Trp Asp Tyr Ile Asn Asn Gln Cys Asp Glu Leu Cys Asn Thr Val Glu  
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 Cys Leu Phe Asp Asn Phe Glu Cys Gln Gly Asn Ser Lys Thr Cys Lys  
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 Thr Asp Arg Thr Gly Glu Met Ala Leu His Leu Ala Ala Arg Tyr Ser  
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 1890 1895 1900  
 Ala Gln Asp Asn Met Gly Arg Cys Pro Leu His Ala Ala Val Ala Ala  
 1905 1910 1915 1920  
 Asp Ala Gln Gly Val Phe Gln Ile Leu Ile Arg Asn Arg Val Thr Asp  
 1925 1930 1935  
 Leu Asp Ala Arg Met Asn Asp Gly Thr Pro Leu Ile Leu Ala Ala  
 1940 1945 1950  
 Arg Leu Ala Val Glu Gly Met Val Ala Glu Leu Ile Asn Cys Gln Ala



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Asp	Val	Asn	Ala	Val	Asp	Asp	His	Gly	Lys	Ser	Ala	Leu	His	Trp	Ala
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Ala	Ala	Val	Asn	Asn	Val	Glu	Ala	Thr	Leu	Leu	Leu	Leu	Lys	Asn	Gly
1985				1990				1995				2000			
Ala	Asn	Arg	Asp	Met	Gln	Asp	Asn	Lys	Glu	Glu	Thr	Pro	Leu	Phe	Leu
				2005				2010				2015			
Ala	Ala	Arg	Glu	Gly	Ser	Tyr	Glu	Ala	Ala	Lys	Ile	Leu	Leu	Asp	His
				2020				2025				2030			
Phe	Ala	Asn	Arg	Asp	Ile	Thr	Asp	His	Met	Asp	Arg	Leu	Pro	Arg	Asp
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Val	Ala	Arg	Asp	Arg	Met	His	His	Asp	Ile	Val	Arg	Leu	Leu	Asp	Glu
				2050				2055				2060			
Tyr	Asn	Val	Thr	Pro	Ser	Pro	Pro	Gly	Thr	Val	Leu	Thr	Ser	Ala	Leu
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Ser	Pro	Val	Ile	Cys	Gly	Pro	Asn	Arg	Ser	Phe	Leu	Ser	Leu	Lys	His
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Thr	Pro	Met	Gly	Lys	Lys	Ser	Arg	Arg	Pro	Ser	Ala	Lys	Ser	Thr	Met
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Gln	Ala	Ser	Pro	Asn	Pro	Met	Leu	Ala	Thr	Ala	Ala	Pro	Pro	Ala	Pro
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Leu	Ser	His	His	His	Ile	Val	Ser	Pro	Gly	Ser	Gly	Ser	Ala	Gly	Ser
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Leu	Ser	Arg	Leu	His	Pro	Val	Pro	Val	Pro	Ala	Asp	Trp	Met	Asn	Arg
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Met	Glu	Val	Asn	Glu	Thr	Gln	Tyr	Asn	Glu	Met	Phe	Gly	Met	Val	Leu
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Ala	Pro	Ala	Glu	Gly	Thr	His	Pro	Gly	Ile	Ala	Pro	Gln	Ser	Arg	Pro
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Pro	Glu	Gly	Lys	His	Ile	Thr	Thr	Pro	Arg	Glu	Pro	Leu	Pro	Pro	Ile
2290				2295				2300							
Val	Thr	Phe	Gln	Leu	Ile	Pro	Lys	Gly	Ser	Ile	Ala	Gln	Pro	Ala	Gly
2305				2310				2315				2320			
Ala	Pro	Gln	Pro	Gln	Ser	Thr	Cys	Pro	Pro	Ala	Val	Ala	Gly	Pro	Leu
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Pro	Thr	Met	Tyr	Gln	Ile	Pro	Glu	Met	Ala	Arg	Leu	Pro	Ser	Val	Ala
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Phe	Pro	Thr	Ala	Met	Met	Pro	Gln	Gln	Asp	Gly	Gln	Val	Ala	Gln	Thr
2355				2360				2365							
Ile	Leu	Pro	Ala	Tyr	His	Pro	Phe	Pro	Ala	Ser	Val	Gly	Lys	Tyr	Pro
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Thr	Pro	Pro	Ser	Gln	His	Ser	Tyr	Ala	Ser	Ser	Asn	Ala	Ala	Glu	Arg
2385				2390				2395				2400			
Thr	Pro	Ser	His	Ser	Gly	His	Leu	Gln	Gly	Glu	His	Pro	Tyr	Leu	Thr
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Pro	Ser	Pro	Glu	Ser	Pro	Asp	Gln	Trp	Ser	Ser	Ser	Ser	Pro	His	Ser
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Ala	Ser	Asp	Trp	Ser	Asp	Val	Thr	Thr	Ser	Pro	Thr	Pro	Gly	Gly	Ala
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 35 40 45  
 Gly Gly Ala Phe Val Gly Pro Arg Cys Gln Asp Pro Asn Pro Cys Leu  
 50 55 60  
 Ser Thr Pro Cys Lys Asn Ala Gly Thr Cys His Val Val Asp Arg Arg  
 65 70 75 80  
 Gly Val Ala Asp Tyr Ala Cys Ser Cys Ala Leu Gly Phe Ser Gly Pro  
 85 90 95  
 Leu Cys Leu Thr Pro Leu Asp Asn Ala Cys Leu Thr Asn Pro Cys Arg  
 100 105 110  
 Asn Gly Gly Thr Cys Asp Leu Leu Thr Leu Thr Glu Tyr Lys Cys Arg  
 115 120 125  
 Cys Pro Pro Gly Trp Ser Gly Lys Ser Cys Gln Gln Ala Asp Pro Cys  
 130 135 140  
 Ala Ser Asn Pro Cys Ala Asn Gly Gly Gln Cys Leu Pro Phe Glu Ala  
 145 150 155 160  
 Ser Tyr Ile Cys His Cys Pro Pro Ser Phe His Gly Pro Thr Cys Arg  
 165 170 175  
 Gln Asp Val Asn Glu Cys Gly Gln Lys Pro Arg Leu Cys Arg His Gly  
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 Gly Thr Cys His Asn Glu Val Gly Ser Tyr Arg Cys Val Cys Arg Ala  
 195 200 205  
 Thr His Thr Gly Pro Asn Cys Glu Arg Pro Tyr Val Pro Cys Ser Pro  
 210 215 220  
 Ser Pro Cys Gln Asn Gly Gly Thr Cys Arg Pro Thr Gly Asp Val Thr  
 225 230 235 240  
 His Glu Cys Ala Cys Leu Pro Gly Phe Thr Gly Gln Asn Cys Glu Glu  
 245 250 255  
 Asn Ile Asp Asp Cys Pro Gly Asn Asn Cys Lys Asn Gly Gly Ala Cys  
 260 265 270  
 Val Asp Gly Val Asn Thr Tyr Asn Cys Pro Cys Pro Pro Glu Trp Thr  
 275 280 285  
 Gly Gln Tyr Cys Thr Glu Asp Val Asp Glu Cys Gln Leu Met Pro Asn  
 290 295 300  
 Ala Cys Gln Asn Gly Gly Thr Cys His Asn Thr His Gly Gly Tyr Asn  
 305 310 315 320  
 Cys Val Cys Val Asn Gly Trp Thr Gly Glu Asp Cys Ser Glu Asn Ile  
 325 330 335  
 Asp Asp Cys Ala Ser Ala Ala Cys Phe His Gly Ala Thr Cys His Asp  
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 Arg Val Ala Ser Phe Tyr Cys Glu Cys Pro His Gly Arg Thr Gly Leu  
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Leu	Cys	His	Leu	Asn	Asp	Ala	Cys	Ile	Ser	Asn	Pro	Cys	Asn	Glu	Gly	
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385					390					395					400	
Pro	Ser	Gly	Tyr	Thr	Gly	Pro	Ala	Cys	Ser	Gln	Asp	Val	Asp	Glu	Cys	
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Leu	Gly	Ser	Phe	Glu	Cys	Gln	Cys	Leu	Gln	Gly	Tyr	Thr	Gly	Pro	Arg	
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Cys	Glu	Ile	Asp	Val	Asn	Glu	Cys	Val	Ser	Asn	Pro	Cys	Gln	Asn	Asp	
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Ala	Thr	Cys	Leu	Asp	Gln	Ile	Gly	Glu	Phe	Gln	Cys	Met	Cys	Met	Pro	
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Asp	Gly	Pro	Asn	Thr	Tyr	Thr	Cys	Val	Cys	Thr	Glu	Gly	Tyr	Thr	Gly	
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Tyr	Gly	Ser	Cys	Lys	Asp	Gly	Val	Ala	Thr	Phe	Thr	Cys	Leu	Cys	Arg	
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Pro	Glu	Gly	Tyr	His	Asp	Pro	Thr	Cys	Leu	Ser	Glu	Val	Asn	Glu	Cys	
705					710					715					720	
Asn	Ser	Asn	Pro	Cys	Val	His	Gly	Ala	Cys	Arg	Asp	Ser	Leu	Asn	Gly	
				725					730					735		
Tyr	Lys	Cys	Asp	Cys	Asp	Pro	Gly	Trp	Ser	Gly	Thr	Asn	Cys	Asp	Ile	
			740					745					750			
Asn	Asn	Asn	Glu	Cys	Glu	Ser	Asn	Pro	Cys	Val	Asn	Gly	Gly	Thr	Cys	
		755					760					765				
Lys	Asp	Met	Thr	Ser	Gly	Ile	Val	Cys	Thr	Cys	Arg	Glu	Gly	Phe	Ser	
		770				775					780					
Gly	Pro	Asn	Cys	Gln	Thr	Asn	Ile	Asn	Glu	Cys	Ala	Ser	Asn	Pro	Cys	
785					790					795					800	
Leu	Asn	Lys	Gly	Thr	Cys	Ile	Asp	Asp	Val	Ala	Gly	Tyr	Lys	Cys	Asn	
				805					810					815		
Cys	Leu	Leu	Pro	Tyr	Thr	Gly	Ala	Thr	Cys	Glu	Val	Val	Leu	Ala	Pro	
			820					825					830			
Cys	Ala	Pro	Ser	Pro	Cys	Arg	Asn	Gly	Gly	Glu	Cys	Arg	Gln	Ser	Glu	
		835					840					845				
Asp	Tyr	Glu	Ser	Phe	Ser	Cys	Val	Cys	Pro	Thr	Ala	Gly	Ala	Lys	Gly	

850	855	860
Gln Thr Cys Glu Val Asp Ile Asn Glu Cys Val Leu Ser Pro Cys Arg		
865	870	875
His Gly Ala Ser Cys Gln Asn Thr His Gly Gly Tyr Arg Cys His Cys		880
	885	890
Gln Ala Gly Tyr Ser Gly Arg Asn Cys Glu Thr Asp Ile Asp Asp Cys		895
	900	905
Arg Pro Asn Pro Cys His Asn Gly Gly Ser Cys Thr Asp Gly Ile Asn		910
	915	920
Thr Ala Phe Cys Asp Cys Leu Pro Gly Phe Arg Gly Thr Phe Cys Glu		925
	930	935
Glu Asp Ile Asn Glu Cys Ala Ser Asp Pro Cys Arg Asn Gly Ala Asn		940
945	950	955
Cys Thr Asp Cys Val Asp Ser Tyr Thr Cys Thr Cys Pro Ala Gly Phe		960
	965	970
Ser Gly Ile His Cys Glu Asn Asn Thr Pro Asp Cys Thr Glu Ser Ser		975
	980	985
Cys Phe Asn Gly Gly Thr Cys Val Asp Gly Ile Asn Ser Phe Thr Cys		990
	995	1000
Leu Cys Pro Pro Gly Phe Thr Gly Ser Tyr Cys Gln His Val Val Asn		1005
	1010	1015
Glu Cys Asp Ser Arg Pro Cys Leu Leu Gly Gly Thr Cys Gln Asp Gly		1020
1025	1030	1035
Arg Gly Leu His Arg Cys Thr Cys Pro Gln Gly Tyr Thr Gly Pro Asn		1040
	1045	1050
Cys Gln Asn Leu Val His Trp Cys Asp Ser Ser Pro Cys Lys Asn Gly		1055
	1060	1065
Gly Lys Cys Trp Gln Thr His Thr Gln Tyr Arg Cys Glu Cys Pro Ser		1070
	1075	1080
Gly Trp Thr Gly Leu Tyr Cys Asp Val Pro Ser Val Ser Cys Glu Val		1085
	1090	1095
Ala Ala Gln Arg Gln Gly Val Asp Val Ala Arg Leu Cys Gln His Gly		1100
1105	1110	1115
Gly Leu Cys Val Asp Ala Gly Asn Thr His His Cys Arg Cys Gln Ala		1120
	1125	1130
Gly Tyr Thr Gly Ser Tyr Cys Glu Asp Leu Val Asp Glu Cys Ser Pro		1135
	1140	1145
Ser Pro Cys Gln Asn Gly Ala Thr Cys Thr Asp Tyr Leu Gly Gly Tyr		1150
	1155	1160
Ser Cys Lys Cys Val Ala Gly Tyr His Gly Val Asn Cys Ser Glu Glu		1165
	1170	1175
Ile Asp Glu Cys Leu Ser His Pro Cys Gln Asn Gly Gly Thr Cys Leu		1180
1185	1190	1195
Asp Leu Pro Asn Thr Tyr Lys Cys Ser Cys Pro Arg Gly Thr Gln Gly		1200
	1205	1210
Val His Cys Glu Ile Asn Val Asp Asp Cys Asn Pro Pro Val Asp Pro		1215
	1220	1225
Val Ser Arg Ser Pro Lys Cys Phe Asn Asn Gly Thr Cys Val Asp Gln		1230
	1235	1240
Val Gly Gly Tyr Ser Cys Thr Cys Pro Pro Gly Phe Val Gly Glu Arg		1245
	1250	1255
Cys Glu Gly Asp Val Asn Glu Cys Leu Ser Asn Pro Cys Asp Ala Arg		1260
1265	1270	1275
Gly Thr Gln Asn Cys Val Gln Arg Val Asn Asp Phe His Cys Glu Cys		1280
	1285	1290
Arg Ala Gly His Thr Gly Arg Arg Cys Glu Ser Val Ile Asn Gly Cys		1295
	1300	1305
Lys Gly Lys Pro Cys Lys Asn Gly Thr Cys Ala Val Ala Ser Asn		1310
	1315	1320
Thr Ala Arg Gly Phe Ile Cys Lys Cys Pro Ala Gly Phe Glu Gly Ala		1325
	1330	1335
		1340

Thr Cys Glu Asn Asp Ala Arg Thr Cys Gly Ser Leu Arg Cys Leu Asn  
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 Gly Gly Thr Cys Ile Ser Gly Pro Arg Ser Pro Thr Cys Leu Cys Leu  
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 Gly Pro Phe Thr Gly Pro Glu Cys Gln Phe Pro Ala Ser Ser Pro Cys  
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 Leu Gly Gly Asn Pro Cys Tyr Asn Gln Gly Thr Cys Glu Pro Thr Ser  
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 Glu Ser Pro Phe Tyr Arg Cys Leu Cys Pro Ala Lys Phe Asn Gly Leu  
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 Leu Cys His Ile Leu Asp Tyr Ser Phe Gly Gly Gly Ala Gly Arg Asp  
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 Glu Asp Ala Gly Asn Lys Val Cys Ser Leu Gln Cys Asn Asn His Ala  
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 Cys Gly Trp Asp Gly Gly Asp Cys Ser Leu Asn Phe Asn Asp Pro Trp  
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 Asp Cys Gln Arg Ala Glu Gly Gln Cys Asn Pro Leu Tyr Asp Gln Tyr  
 1525 1530 1535  
 Cys Lys Asp His Phe Ser Asp Gly His Cys Asp Gln Gly Cys Asn Ser  
 1540 1545 1550  
 Ala Glu Cys Glu Trp Asp Gly Leu Asp Cys Ala Glu His Val Pro Glu  
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 Arg Leu Ala Ala Gly Thr Leu Val Val Val Val Leu Met Pro Pro Glu  
 1570 1575 1580  
 Gln Leu Arg Asn Ser Ser Phe His Phe Leu Arg Glu Leu Ser Arg Val  
 1585 1590 1595 1600  
 Leu His Thr Asn Val Val Phe Lys Arg Asp Ala His Gly Gln Gln Met  
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 Ile Phe Pro Tyr Tyr Gly Arg Glu Glu Glu Leu Arg Lys His Pro Ile  
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 Lys Arg Ala Ala Glu Gly Trp Ala Ala Pro Asp Ala Leu Leu Gly Gln  
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 Val Lys Ala Ser Leu Leu Pro Gly Gly Ser Glu Gly Gly Arg Arg Arg  
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 Arg Glu Leu Asp Pro Met Asp Val Arg Gly Ser Ile Val Tyr Leu Glu  
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 Ile Asp Asn Arg Gln Cys Val Gln Ala Ser Ser Gln Cys Phe Gln Ser  
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 Ala Thr Asp Val Ala Ala Phe Leu Gly Ala Leu Ala Ser Leu Gly Ser  
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 Leu Asn Ile Pro Tyr Lys Ile Glu Ala Val Gln Ser Glu Thr Val Glu  
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 Pro Pro Pro Pro Ala Gln Leu His Phe Met Tyr Val Ala Ala Ala Ala  
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 Phe Val Leu Leu Phe Phe Val Gly Cys Gly Val Leu Leu Ser Arg Lys  
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 Arg Arg Arg Gln His Gly Gln Leu Trp Phe Pro Glu Gly Phe Lys Val  
 1765 1770 1775  
 Ser Glu Ala Ser Lys Lys Lys Arg Arg Glu Glu Leu Gly Glu Asp Ser  
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 Val Gly Leu Lys Pro Leu Lys Asn Ala Ser Asp Gly Ala Leu Met Asp  
 1795 1800 1805  
 Asp Asn Gln Asn Glu Trp Gly Asp Glu Asp Leu Glu Thr Lys Lys Phe  
 1810 1815 1820  
 Arg Phe Glu Glu Pro Val Val Leu Pro Asp Leu Asp Asp Gln Thr Asp

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His Arg Gln Trp	Thr Gln Gln His Leu	Asp Ala Ala Asp Leu Arg Met				
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Ser Ala Met Ala	Pro Thr Pro Pro Gln Gly Glu Val Asp Ala Asp Cys					
	1860	1865		1870		
Met Asp Val Asn Val Arg Gly	Pro Asp Gly Phe Thr Pro Leu Met Ile					
	1875	1880		1885		
Ala Ser Cys Ser Gly Gly Gly Leu Glu Thr Gly Asn Ser Glu Glu Glu						
	1890	1895		1900		
Glu Asp Ala Pro Ala Val Ile Ser Asp Phe Ile Tyr Gln Gly Ala Ser						
1905	1910	1915		1920		
Leu His Asn Gln Thr Asp Arg Thr Gly Glu Thr Ala Leu His Leu Ala						
	1925	1930		1935		
Ala Arg Tyr Ser Arg Ser Asp Ala Ala Lys Arg Leu Leu Glu Ala Ser						
	1940	1945		1950		
Ala Asp Ala Asn Ile Gln Asp Asn Met Gly Arg Thr Pro Leu His Ala						
	1955	1960		1965		
Ala Val Ser Ala Asp Ala Gln Gly Val Phe Gln Ile Leu Ile Arg Asn						
	1970	1975		1980		
Arg Ala Thr Asp Leu Asp Ala Arg Met His Asp Gly Thr Thr Pro Leu						
1985	1990	1995		2000		
Ile Leu Ala Ala Arg Leu Ala Val Glu Gly Met Leu Glu Asp Leu Ile						
	2005	2010		2015		
Asn Ser His Ala Asp Val Asn Ala Val Asp Asp Leu Gly Lys Ser Ala						
	2020	2025		2030		
Leu His Trp Ala Ala Ala Val Asn Asn Val Asp Ala Ala Val Val Leu						
	2035	2040		2045		
Leu Lys Asn Gly Ala Asn Lys Asp Met Gln Asn Asn Arg Glu Glu Thr						
	2050	2055		2060		
Pro Leu Phe Leu Ala Ala Arg Glu Gly Ser Tyr Glu Thr Ala Lys Val						
2065	2070	2075		2080		
Leu Leu Asp His Phe Ala Asn Arg Asp Ile Thr Asp His Met Asp Arg						
	2085	2090		2095		
Leu Pro Arg Asp Ile Ala Gln Glu Arg Met His His Asp Ile Val Arg						
	2100	2105		2110		
Leu Leu Asp Glu Tyr Asn Leu Val Arg Ser Pro Gln Leu His Gly Ala						
	2115	2120		2125		
Pro Leu Gly Gly Thr Pro Thr Leu Ser Pro Pro Leu Cys Ser Pro Asn						
	2130	2135		2140		
Gly Tyr Leu Gly Ser Leu Lys Pro Gly Val Gln Gly Lys Lys Val Arg						
2145	2150	2155		2160		
Lys Pro Ser Ser Lys Gly Leu Ala Cys Gly Ser Lys Glu Ala Lys Asp						
	2165	2170		2175		
Leu Lys Ala Arg Arg Lys Lys Ser Gln Asp Gly Lys Gly Cys Leu Leu						
	2180	2185		2190		
Asp Ser Ser Gly Met Leu Ser Pro Val Asp Ser Leu Glu Ser Pro His						
	2195	2200		2205		
Gly Tyr Leu Ser Asp Val Ala Ser Pro Pro Leu Leu Pro Ser Pro Phe						
	2210	2215		2220		
Gln Gln Ser Pro Ser Val Pro Leu Asn His Leu Pro Gly Met Pro Asp						
2225	2230	2235		2240		
Thr His Leu Gly Ile Gly His Leu Asn Val Ala Ala Lys Pro Glu Met						
	2245	2250		2255		
Ala Ala Leu Gly Gly Gly Gly Arg Leu Ala Phe Glu Thr Gly Pro Pro						
	2260	2265		2270		
Arg Leu Ser His Leu Pro Val Ala Ser Gly Thr Ser Thr Val Leu Gly						
	2275	2280		2285		
Ser Ser Ser Gly Gly Ala Leu Asn Phe Thr Val Gly Gly Ser Thr Ser						
	2290	2295		2300		
Leu Asn Gly Gln Cys Glu Trp Leu Ser Arg Leu Gln Ser Gly Met Val						

2305	2310	2315	2320
Pro Asn Gln Tyr	Asn Pro Leu Arg Gly	Ser Val Ala Pro Gly	Pro Leu
	2325	2330	2335
Ser Thr Gln Ala	Pro Ser Leu Gln His	Gly Met Val Gly	Pro Leu His
	2340	2345	2350
Ser Ser Leu Ala Ala	Ser Ala Leu Ser Gln Met Met	Ser Tyr Gln Gly	
	2355	2360	2365
Leu Pro Ser Thr Arg	Leu Ala Thr Gln Pro His	Leu Val Gln Thr Gln	
	2370	2375	2380
Gln Val Gln Pro Gln	Asn Leu Gln Met Gln Gln Gln	Asn Leu Gln Pro	
2385	2390	2395	2400
Ala Asn Ile Gln Gln	Gln Gln Ser Leu Gln Pro Pro Pro	Pro Pro Pro	
	2405	2410	2415
Gln Pro His Leu Gly	Val Ser Ser Ala Ala Ser Gly His	Leu Gly Arg	
	2420	2425	2430
Ser Phe Leu Ser Gly	Glu Pro Ser Gln Ala Asp Val Gln	Pro Leu Gly	
	2435	2440	2445
Pro Ser Ser Leu Ala	Val His Thr Ile Leu Pro Gln Glu	Ser Pro Ala	
	2450	2455	2460
Leu Pro Thr Ser Leu	Pro Ser Ser Leu Val Pro Pro Val Thr	Ala Ala	
2465	2470	2475	2480
Gln Phe Leu Thr Pro	Pro Ser Gln His Ser Tyr Ser Ser	Pro Val Glu	
	2485	2490	2495
Asn Thr Pro Ser His	Gln Leu Gln Val Pro Glu His Pro	Phe Leu Thr	
	2500	2505	2510
Pro Ser Pro Glu Ser	Pro Asp Gln Trp Ser Ser Ser	Ser Pro His Ser	
	2515	2520	2525
Asn Val Ser Asp Trp	Ser Glu Gly Val Ser Ser Pro Pro	Thr Ser Met	
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Gln Ser Gln Ile Ala	Arg Ile Pro Glu Ala Phe Lys		
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 Trp Leu Cys Cys Ala Ala Pro Ala His Ala Leu Gln Cys Arg Asp Gly  
           15                          20                          25                          30

tat gaa ccc tgt gta aat gaa gga atg tgt gtt acc tac cac aat ggc 147  
 Tyr Glu Pro Cys Val Asn Glu Gly Met Cys Val Thr Tyr His Asn Gly  
                           35                          40                          45

aca gga tac tgc aaa tgt cca gaa ggc ttc ttg ggg gaa tat tgt caa 195  
 Thr Gly Tyr Cys Lys Cys Pro Glu Gly Phe Leu Gly Glu Tyr Cys Gln  
                           50                          55                          60

cat	cga	gac	ccc	tgt	gag	aag	aac	cgc	tgc	cag	aat	ggg	ggg	act	tgt	243
His	Arg	Asp	Pro	Cys	Glu	Lys	Asn	Arg	Cys	Gln	Asn	Gly	Gly	Thr	Cys	
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gtg	gcc	cag	gcc	atg	ctg	ggg	aaa	gcc	acg	tgc	cga	tgt	gcc	tca	ggg	291
Val	Ala	Gln	Ala	Met	Leu	Gly	Lys	Ala	Thr	Cys	Arg	Cys	Ala	Ser	Gly	
	80					85					90					
ttt	aca	gga	gag	gac	tgc	cag	tac	tca	aca	tct	cat	cca	tgc	ttt	gtg	339
Phe	Thr	Gly	Glu	Asp	Cys	Gln	Tyr	Ser	Thr	Ser	His	Pro	Cys	Phe	Val	
	95				100					105					110	
tct	cga	ccc	tgc	ctg	aat	ggc	ggc	aca	tgc	cat	atg	ctc	agc	cgg	gat	387
Ser	Arg	Pro	Cys	Leu	Asn	Gly	Gly	Thr	Cys	His	Met	Leu	Ser	Arg	Asp	
				115					120					125		
acc	tat	gag	tgc	acc	tgt	caa	gtc	ggg	ttt	aca	ggg	aag	gag	tgc	caa	435
Thr	Tyr	Glu	Cys	Thr	Cys	Gln	Val	Gly	Phe	Thr	Gly	Lys	Glu	Cys	Gln	
			130					135					140			
tgg	acg	gat	gcc	tgc	ctg	tct	cat	ccc	tgt	gca	aat	gga	agt	acc	tgt	483
Trp	Thr	Asp	Ala	Cys	Leu	Ser	His	Pro	Cys	Ala	Asn	Gly	Ser	Thr	Cys	
		145					150					155				
acc	act	gtg	gcc	aac	cag	ttc	tcc	tgc	aaa	tgc	ctc	aca	ggc	ttc	aca	531
Thr	Thr	Val	Ala	Asn	Gln	Phe	Ser	Cys	Lys	Cys	Leu	Thr	Gly	Phe	Thr	
	160					165					170					
ggg	cag	aaa	tgt	gag	act	gat	gtc	aat	gag	tgt	gac	att	cca	gga	cac	579
Gly	Gln	Lys	Cys	Glu	Thr	Asp	Val	Asn	Glu	Cys	Asp	Ile	Pro	Gly	His	
	175				180					185					190	
tgc	cag	cat	ggg	ggc	acc	tgc	ctc	aac	ctg	cct	ggg	tcc	tac	cag	tgc	627
Cys	Gln	His	Gly	Gly	Thr	Cys	Leu	Asn	Leu	Pro	Gly	Ser	Tyr	Gln	Cys	
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cag	tgc	cct	cag	ggc	ttc	aca	ggc	cag	tac	tgt	gac	agc	ctg	tat	gtg	675
Gln	Cys	Pro	Gln	Gly	Phe	Thr	Gly	Gln	Tyr	Cys	Asp	Ser	Leu	Tyr	Val	
			210					215					220			
ccc	tgt	gca	ccc	tca	cct	tgt	gtc	aat	gga	ggc	acc	tgt	cgg	cag	act	723
Pro	Cys	Ala	Pro	Ser	Pro	Cys	Val	Asn	Gly	Gly	Thr	Cys	Arg	Gln	Thr	
		225					230					235				
ggg	gac	ttc	act	ttt	gag	tgc	aac	tgc	ctt	cca	ggg	ttt	gaa	ggg	agc	771
Gly	Asp	Phe	Thr	Phe	Glu	Cys	Asn	Cys	Leu	Pro	Gly	Phe	Glu	Gly	Ser	
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Thr	Cys	Glu	Arg	Asn	Ile	Asp	Asp	Cys	Pro	Asn	His	Arg	Cys	Gln	Asn	
	255				260					265					270	
gga	ggg	gtt	tgt	gtg	gat	ggg	gtc	aac	act	tac	aac	tgc	cgc	tgt	ccc	867
Gly	Gly	Val	Cys	Val	Asp	Gly	Val	Asn	Thr	Tyr	Asn	Cys	Arg	Cys	Pro	
				275					280					285		
cca	caa	tgg	aca	gga	cag	ttc	tgc	aca	gag	gat	gtg	gat	gaa	tgc	ctg	915
Pro	Gln	Trp	Thr	Gly	Gln	Phe	Cys	Thr	Glu	Asp	Val	Asp		Cys	Leu	
			290					295					300			
ctg	cag	ccc	aat	gcc	tgt	caa	aat	ggg	ggc	acc	tgt	gcc	aac	cgc	aat	963



Leu	Gln	Pro	Asn	Ala	Cys	Gln	Asn	Gly	Gly	Thr	Cys	Ala	Asn	Arg	Asn		
		305					310					315					
gga	ggc	tat	ggc	tgt	gta	tgt	gtc	aac	ggc	tgg	agt	gga	gat	gac	tgc	1011	
Gly	Gly	Tyr	Gly	Cys	Val	Cys	Val	Asn	Gly	Trp	Ser	Gly	Asp	Asp	Cys		
		320				325					330						
agt	gag	aac	att	gat	gat	tgt	gcc	ttc	gcc	tcc	tgt	act	cca	ggc	tcc	1059	
Ser	Glu	Asn	Ile	Asp	Asp	Cys	Ala	Phe	Ala	Ser	Cys	Thr	Pro	Gly	Ser		
		335				340				345					350		
acc	tgc	atc	gac	cgt	gtg	gcc	tcc	ttc	tct	tgc	atg	tgc	cca	gag	ggg	1107	
Thr	Cys	Ile	Asp	Arg	Val	Ala	Ser	Phe	Ser	Cys	Met	Cys	Pro	Glu	Gly		
				355					360					365			
aag	gca	ggg	ctc	ctg	tgt	cat	ctg	gat	gat	gca	tgc	atc	agc	aat	cct	1155	
Lys	Ala	Gly	Leu	Leu	Cys	His	Leu	Asp	Asp	Ala	Cys	Ile	Ser	Asn	Pro		
			370					375					380				
tgc	cac	aag	ggg	gca	ctg	tgt	gac	acc	aac	ccc	cta	aat	ggg	caa	tat	1203	
Cys	His	Lys	Gly	Ala	Leu	Cys	Asp	Thr	Asn	Pro	Leu	Asn	Gly	Gln	Tyr		
		385					390					395					
att	tgc	acc	tgc	cca	caa	ggc	tac	aaa	ggg	gct	gac	tgc	aca	gaa	gat	1251	
Ile	Cys	Thr	Cys	Pro	Gln	Gly	Tyr	Lys	Gly	Ala	Asp	Cys	Thr	Glu	Asp		
		400				405					410						
gtg	gat	gaa	tgt	gcc	atg	gcc	aat	agc	aat	cct	tgt	gag	cat	gca	gga	1299	
Val	Asp	Glu	Cys	Ala	Met	Ala	Asn	Ser	Asn	Pro	Cys	Glu	His	Ala	Gly		
		415				420				425					430		
aaa	tgt	gtg	aac	acg	gat	ggc	gcc	ttc	cac	tgt	gag	tgt	ctg	aag	ggg	1347	
Lys	Cys	Val	Asn	Thr	Asp	Gly	Ala	Phe	His	Cys	Glu	Cys	Leu	Lys	Gly		
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tat	gca	gga	cct	cgt	tgt	gag	atg	gac	atc	aat	gag	tgc	cat	tca	gac	1395	
Tyr	Ala	Gly	Pro	Arg	Cys	Glu	Met	Asp	Ile	Asn	Glu	Cys	His	Ser	Asp		
			450					455					460				
ccc	tgc	cag	aat	gat	gct	acc	tgt	ctg	gat	aag	att	gga	ggc	ttc	aca	1443	
Pro	Cys	Gln	Asn	Asp	Ala	Thr	Cys	Leu	Asp	Lys	Ile	Gly	Gly	Phe	Thr		
		465					470					475					
tgt	ctg	tgc	atg	cca	ggg	ttc	aaa	ggg	gtg	cat	tgt	gaa	tta	gaa	ata	1491	
Cys	Leu	Cys	Met	Pro	Gly	Phe	Lys	Gly	Val	His	Cys	Glu	Leu	Glu	Ile		
		480				485					490						
aat	gaa	tgt	cag	agc	aac	cct	tgt	gtg	aac	aat	ggg	cag	tgt	gtg	gat	1539	
Asn	Glu	Cys	Gln	Ser	Asn	Pro	Cys	Val	Asn	Asn	Gly	Gln	Cys	Val	Asp		
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aaa	gtc	aat	cgt	ttc	cag	tgc	ctg	tgt	cct	cct	ggg	ttc	act	ggg	cca	1587	
Lys	Val	Asn	Arg	Phe	Gln	Cys	Leu	Cys	Pro	Pro	Gly	Phe	Thr	Gly	Pro		
				515					520					525			
gtt	tgc	cag	att	gat	att	gat	gac	tgt	tcc	agt	act	ccg	tgt	ctg	aat	1635	
Val	Cys	Gln	Ile	Asp	Ile	Asp	Asp	Cys	Ser	Ser	Thr	Pro	Cys	Leu	Asn		
			530				535						540				
ggg	gca	aag	tgt	atc	gat	cac	ccg	aat	ggc	tat	gaa	tgc	cag	tgt	gcc	1683	

Gly	Ala	Lys	Cys	Ile	Asp	His	Pro	Asn	Gly	Tyr	Glu	Cys	Gln	Cys	Ala		
		545					550					555					
aca	ggt	ttc	act	ggt	gtg	ttg	tgt	gag	gag	aac	att	gac	aac	tgt	gac	1731	
Thr	Gly	Phe	Thr	Gly	Val	Leu	Cys	Glu	Glu	Asn	Ile	Asp	Asn	Cys	Asp		
		560				565					570						
ccc	gat	cct	tgc	cac	cat	ggt	cag	tgt	cag	gat	ggt	att	gat	tcc	tac	1779	
Pro	Asp	Pro	Cys	His	His	Gly	Gln	Cys	Gln	Asp	Gly	Ile	Asp	Ser	Tyr		
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acc	tgc	atc	tgc	aat	ccc	ggg	tac	atg	ggc	gcc	atc	tgc	agt	gac	cag	1827	
Thr	Cys	Ile	Cys	Asn	Pro	Gly	Tyr	Met	Gly	Ala	Ile	Cys	Ser	Asp	Gln		
				595					600					605			
att	gat	gaa	tgt	tac	agc	agc	cct	tgc	ctg	aac	gat	ggt	cgc	tgc	att	1875	
Ile	Asp	Glu	Cys	Tyr	Ser	Ser	Pro	Cys	Leu	Asn	Asp	Gly	Arg	Cys	Ile		
			610					615					620				
gac	ctg	gtc	aat	ggc	tac	cag	tgc	aac	tgc	cag	cca	ggc	acg	tca	ggg	1923	
Asp	Leu	Val	Asn	Gly	Tyr	Gln	Cys	Asn	Cys	Gln	Pro	Gly	Thr	Ser	Gly		
		625					630					635					
gtt	aat	tgt	gaa	att	aat	ttt	gat	gac	tgt	gca	agt	aac	cct	tgt	atc	1971	
Val	Asn	Cys	Glu	Ile	Asn	Phe	Asp	Asp	Cys	Ala	Ser	Asn	Pro	Cys	Ile		
		640				645						650					
cat	gga	atc	tgt	atg	gat	ggc	att	aat	cgc	tac	agt	tgt	gtc	tgc	tca	2019	
His	Gly	Ile	Cys	Met	Asp	Gly	Ile	Asn	Arg	Tyr	Ser	Cys	Val	Cys	Ser		
					660					665					670		
cca	gga	ttc	aca	ggg	cag	aga	tgt	aac	att	gac	att	gat	gag	tgt	gcc	2067	
Pro	Gly	Phe	Thr	Gly	Gln	Arg	Cys	Asn	Ile	Asp	Ile	Asp	Glu	Cys	Ala		
				675					680					685			
tcc	aat	ccc	tgt	cgc	aag	ggt	gca	aca	tgt	atc	aac	ggt	gtg	aat	ggt	2115	
Ser	Asn	Pro	Cys	Arg	Lys	Gly	Ala	Thr	Cys	Ile	Asn	Gly	Val	Asn	Gly		
			690					695					700				
ttc	cgc	tgt	ata	tgc	ccc	gag	gga	ccc	cat	cac	ccc	agc	tgc	tac	tca	2163	
Phe	Arg	Cys	Ile	Cys	Pro	Glu	Gly	Pro	His	His	Pro	Ser	Cys	Tyr	Ser		
		705					710					715					
cag	gtg	aac	gaa	tgc	ctg	agc	aat	ccc	tgc	atc	cat	gga	aac	tgt	act	2211	
Gln	Val	Asn	Glu	Cys	Leu	Ser	Asn	Pro	Cys	Ile	His	Gly	Asn	Cys	Thr		
		720				725					730						
gga	ggt	ctc	agt	gga	tat	aag	tgt	ctc	tgt	gat	gca	ggc	tgg	gtt	ggc	2259	
Gly	Gly	Leu	Ser	Gly	Tyr	Lys	Cys	Leu	Cys	Asp	Ala	Gly	Trp	Val	Gly		
					740				745					750			
atc	aac	tgt	gaa	gtg	gac	aaa	aat	gaa	tgc	ctt	tcg	aat	cca	tgc	cag	2307	
Ile	Asn	Cys	Glu	Val	Asp	Lys	Asn	Glu	Cys	Leu	Ser	Asn	Pro	Cys	Gln		
				755					760					765			
aat	gga	gga	act	tgt	gac	aat	ctg	gtg	aat	gga	tac	agg	tgt	act	tgc	2355	
Asn	Gly	Gly	Thr	Cys	Asp	Asn	Leu	Val	Asn	Gly	Tyr	Arg	Cys	Thr	Cys		
			770					775					780				
aag	aag	ggc	ttt	aaa	ggc	tat	aac	tgc	cag	gtg	aat	att	gat	gaa	tgt	2403	
Lys	Lys	Gly	Phe	Lys	Gly	Tyr	Asn	Cys	Gln	Val	Asn	Ile	Asp	Glu	Cys		

785					790					795						
gcc	tca	aat	cca	tgc	ctg	aac	caa	gga	acc	tgc	ttt	gat	gac	ata	agt	2451
Ala	Ser	Asn	Pro	Cys	Leu	Asn	Gln	Gly	Thr	Cys	Phe	Asp	Asp	Ile	Ser	
	800					805					810					
ggc	tac	act	tgc	cac	tgt	gtg	ctg	cca	tac	aca	ggc	aag	aat	tgt	cag	2499
Gly	Tyr	Thr	Cys	His	Cys	Val	Leu	Pro	Tyr	Thr	Gly	Lys	Asn	Cys	Gln	
	815				820					825					830	
aca	gta	ttg	gct	ccc	tgt	tcc	cca	aac	cct	tgt	gag	aat	gct	gct	gtt	2547
Thr	Val	Leu	Ala	Pro	Cys	Ser	Pro	Asn	Pro	Cys	Glu	Asn	Ala	Ala	Val	
				835					840					845		
tgc	aaa	gag	tca	cca	aat	ttt	gag	agt	tat	act	tgc	ttg	tgt	gct	cct	2595
Cys	Lys	Glu	Ser	Pro	Asn	Phe	Glu	Ser	Tyr	Thr	Cys	Leu	Cys	Ala	Pro	
			850					855					860			
ggc	tgg	caa	ggc	cag	cgg	tgt	acc	att	gac	att	gac	gag	tgt	atc	tcc	2643
Gly	Trp	Gln	Gly	Gln	Arg	Cys	Thr	Ile	Asp	Ile	Asp	Glu	Cys	Ile	Ser	
	865					870					875					
aag	ccc	tgc	atg	aac	cat	ggc	ctc	tgc	cat	aac	acc	cag	ggc	agc	tac	2691
Lys	Pro	Cys	Met	Asn	His	Gly	Leu	Cys	His	Asn	Thr	Gln	Gly	Ser	Tyr	
	880					885					890					
atg	tgt	gaa	tgt	cca	cca	ggc	ttc	agt	ggc	atg	gac	tgt	gag	gag	gac	2739
Met	Cys	Glu	Cys	Pro	Pro	Gly	Phe	Ser	Gly	Met	Asp	Cys	Glu	Glu	Asp	
	895				900					905					910	
att	gat	gac	tgc	ctt	gcc	aat	cct	tgc	cag	aat	gga	ggc	tcc	tgt	atg	2787
Ile	Asp	Asp	Cys	Leu	Ala	Asn	Pro	Cys	Gln	Asn	Gly	Gly	Ser	Cys	Met	
				915					920					925		
gat	gga	gtg	aat	act	ttc	tcc	tgc	ctc	tgc	ctt	ccg	ggc	ttc	act	ggg	2835
Asp	Gly	Val	Asn	Thr	Phe	Ser	Cys	Leu	Cys	Leu	Pro	Gly	Phe	Thr	Gly	
			930					935					940			
gat	aag	tgc	cag	aca	gac	atg	aat	gag	tgt	ctg	agt	gaa	ccc	tgt	aag	2883
Asp	Lys	Cys	Gln	Thr	Asp	Met	Asn	Glu	Cys	Leu	Ser	Glu	Pro	Cys	Lys	
	945						950					955				
aat	gga	ggg	acc	tgc	tct	gac	tac	gtc	aac	agt	tac	act	tgc	aag	tgc	2931
Asn	Gly	Gly	Thr	Cys	Ser	Asp	Tyr	Val	Asn	Ser	Tyr	Thr	Cys	Lys	Cys	
	960					965					970					
cag	gca	gga	ttt	gat	gga	gtc	cat	tgt	gag	aac	aac	atc	aat	gag	tgc	2979
Gln	Ala	Gly	Phe	Asp	Gly	Val	His	Cys	Glu	Asn	Asn	Ile	Asn	Glu	Cys	
	975				980					985					990	
act	gag	agc	tcc	tgt	ttc	aat	ggc	ggc	aca	tgt	gtt	gat	ggg	att	aac	3027
Thr	Glu	Ser	Ser	Cys	Phe	Asn	Gly	Gly	Thr	Cys	Val	Asp	Gly	Ile	Asn	
				995				1000						1005		
tcc	ttc	tct	tgc	ttg	tgc	cct	gtg	ggc	ttc	act	gga	tcc	ttc	tgc	ctc	3075
Ser	Phe	Ser	Cys	Leu	Cys	Pro	Val	Gly	Phe	Thr	Gly	Ser	Phe	Cys	Leu	
			1010					1015					1020			
cat	gag	atc	aat	gaa	tgc	agc	tct	cat	cca	tgc	ctg	aat	gag	gga	acg	3123
His	Glu	Ile	Asn	Glu	Cys	Ser	Ser	His	Pro	Cys	Leu	Asn	Glu	Gly	Thr	
	1025						1030					1035				

tgt gtt gat ggc ctg ggt acc tac cgc tgc agc tgc ccc ctg ggc tac	3171
Cys Val Asp Gly Leu Gly Thr Tyr Arg Cys Ser Cys Pro Leu Gly Tyr	
1040 1045 1050	
act ggg aaa aac tgt cag acc ctg gtg aat ctc tgc agt cgg tct cca	3219
Thr Gly Lys Asn Cys Gln Thr Leu Val Asn Leu Cys Ser Arg Ser Pro	
1055 1060 1065 1070	
tgt aaa aac aaa ggt act tgt gtt cag aaa aaa gca gag tcc cag tgc	3267
Cys Lys Asn Lys Gly Thr Cys Val Gln Lys Lys Ala Glu Ser Gln Cys	
1075 1080 1085	
cta tgt cca tct gga tgg gct ggt gcc tat tgt gac gtg ccc aat gtc	3315
Leu Cys Pro Ser Gly Trp Ala Gly Ala Tyr Cys Asp Val Pro Asn Val	
1090 1095 1100	
tct tgt gac ata gca gcc tcc agg aga ggt gtg ctt gtt gaa cac ttg	3363
Ser Cys Asp Ile Ala Ala Ser Arg Arg Gly Val Leu Val Glu His Leu	
1105 1110 1115	
tgc cag cac tca ggt gtc tgc atc aat gct ggc aac acg cat tac tgt	3411
Cys Gln His Ser Gly Val Cys Ile Asn Ala Gly Asn Thr His Tyr Cys	
1120 1125 1130	
cag tgc ccc ctg ggc tat act ggg agc tac tgt gag gag caa ctc gat	3459
Gln Cys Pro Leu Gly Tyr Thr Gly Ser Tyr Cys Glu Glu Gln Leu Asp	
1135 1140 1145 1150	
gag tgt gcg tcc aac ccc tgc cag cac ggg gca aca tgc agt gac ttc	3507
Glu Cys Ala Ser Asn Pro Cys Gln His Gly Ala Thr Cys Ser Asp Phe	
1155 1160 1165	
att ggt gga tac aga tgc gag tgt gtc cca ggc tat cag ggt gtc aac	3555
Ile Gly Gly Tyr Arg Cys Glu Cys Val Pro Gly Tyr Gln Gly Val Asn	
1170 1175 1180	
tgt gag tat gaa gtg gat gag tgc cag aat cag ccc tgc cag aat gga	3603
Cys Glu Tyr Glu Val Asp Glu Cys Gln Asn Gln Pro Cys Gln Asn Gly	
1185 1190 1195	
ggc acc tgt att gac ctt gtg aac cat ttc aag tgc tct tgc cca cca	3651
Gly Thr Cys Ile Asp Leu Val Asn His Phe Lys Cys Ser Cys Pro Pro	
1200 1205 1210	
ggc act cgg ggc cta ctc tgt gaa gag aac att gat gac tgt gcc cgg	3699
Gly Thr Arg Gly Leu Leu Cys Glu Glu Asn Ile Asp Asp Cys Ala Arg	
1215 1220 1225 1230	
ggt ccc cat tgc ctt aat ggt ggt cag tgc atg gat agg att gga ggc	3747
Gly Pro His Cys Leu Asn Gly Gly Gln Cys Met Asp Arg Ile Gly Gly	
1235 1240 1245	
tac agt tgt cgc tgc ttg cct ggc ttt gct ggg gag cgt tgt gag gga	3795
Tyr Ser Cys Arg Cys Leu Pro Gly Phe Ala Gly Glu Arg Cys Glu Gly	
1250 1255 1260	
gac atc aac gag tgc ctc tcc aac ccc tgc agc tct gag ggc agc ctg	3843
Asp Ile Asn Glu Cys Leu Ser Asn Pro Cys Ser Ser Glu Gly Ser Leu	
1265 1270 1275	

gac tgt ata cag ctc acc aat gac tac ctg tgt gtt tgc cgt agt gcc Asp Cys Ile Gln Leu Thr Asn Asp Tyr Leu Cys Val Cys Arg Ser Ala 1280 1285 1290	3891
ttt act ggc cgg cac tgt gaa acc ttc gtc gat gtg tgt ccc cag atg Phe Thr Gly Arg His Cys Glu Thr Phe Val Asp Val Cys Pro Gln Met 1295 1300 1305 1310	3939
ccc tgc ctg aat gga ggg act tgt gct gtg gcc agt aac atg cct gat Pro Cys Leu Asn Gly Gly Thr Cys Ala Val Ala Ser Asn Met Pro Asp 1315 1320 1325	3987
ggg ttc att tgc cgt tgt ccc ccg gga ttt tcc ggg gca agg tgc cag Gly Phe Ile Cys Arg Cys Pro Pro Gly Phe Ser Gly Ala Arg Cys Gln 1330 1335 1340	4035
agc agc tgt gga caa gtg aaa tgt agg aag ggg gag cag tgt gtg cac Ser Ser Cys Gly Gln Val Lys Cys Arg Lys Gly Glu Gln Cys Val His 1345 1350 1355	4083
acc gcc tct gga ccc cgc tgc ttc tgc ccc agt ccc cgg gac tgc gag Thr Ala Ser Gly Pro Arg Cys Phe Cys Pro Ser Pro Arg Asp Cys Glu 1360 1365 1370	4131
tca ggc tgt gcc agt agc ccc tgc cag cac ggg ggc agc tgc cac cct Ser Gly Cys Ala Ser Ser Pro Cys Gln His Gly Gly Ser Cys His Pro 1375 1380 1385 1390	4179
cag cgc cag cct cct tat tac tcc tgc cag tgt gcc cca cca ttc tcg Gln Arg Gln Pro Pro Tyr Tyr Ser Cys Gln Cys Ala Pro Pro Phe Ser 1395 1400 1405	4227
ggg agc cgc tgt gaa ctc tac acg gca ccc ccc agc acc cct cct gcc Gly Ser Arg Cys Glu Leu Tyr Thr Ala Pro Pro Ser Thr Pro Pro Ala 1410 1415 1420	4275
acc tgt ctg agc cag tat tgt gcc gac aaa gct cgg gat ggc gtc tgt Thr Cys Leu Ser Gln Tyr Cys Ala Asp Lys Ala Arg Asp Gly Val Cys 1425 1430 1435	4323
gat gag gcc tgc aac agc cat gcc tgc cag tgg gat ggg ggt gac tgt Asp Glu Ala Cys Asn Ser His Ala Cys Gln Trp Asp Gly Gly Asp Cys 1440 1445 1450	4371
tct ctc acc atg gag aac ccc tgg gcc aac tgc tcc tcc cca ctt ccc Ser Leu Thr Met Glu Asn Pro Trp Ala Asn Cys Ser Ser Pro Leu Pro 1455 1460 1465 1470	4419
tgc tgg gat tat atc aac aac cag tgt gat gag ctg tgc aac acg gtc Cys Trp Asp Tyr Ile Asn Asn Gln Cys Asp Glu Leu Cys Asn Thr Val 1475 1480 1485	4467
gag tgc ctg ttt gac aac ttt gaa tgc cag ggg aac agc aag aca tgc Glu Cys Leu Phe Asp Asn Phe Glu Cys Gln Gly Asn Ser Lys Thr Cys 1490 1495 1500	4515
aag tat gac aaa tac tgt gca gac cac ttc aaa gac aac cac tgt aac Lys Tyr Asp Lys Tyr Cys Ala Asp His Phe Lys Asp Asn His Cys Asn 1505 1510 1515	4563

cag ggg tgc aac agt gag gag tgt ggt tgg gat ggg ctg gac tgt gct Gln Gly Cys Asn Ser Glu Glu Cys Gly Trp Asp Gly Leu Asp Cys Ala 1520 1525 1530	4611
gct gac caa cct gag aac ctg gca gaa ggt acc ctg gtt att gtg gta Ala Asp Gln Pro Glu Asn Leu Ala Glu Gly Thr Leu Val Ile Val Val 1535 1540 1545 1550	4659
ttg atg cca cct gaa caa ctg ctc cag gat gct cgc agc ttc ttg cgg Leu Met Pro Pro Glu Gln Leu Leu Gln Asp Ala Arg Ser Phe Leu Arg 1555 1560 1565	4707
gca ctg ggt acc ctg ctc cac acc aac ctg cgc att aag cgg gac tcc Ala Leu Gly Thr Leu Leu His Thr Asn Leu Arg Ile Lys Arg Asp Ser 1570 1575 1580	4755
cag ggg gaa ctc atg gtg tac ccc tat tat ggt gag aag tca gct gct Gln Gly Glu Leu Met Val Tyr Pro Tyr Tyr Gly Glu Lys Ser Ala Ala 1585 1590 1595	4803
atg aag aaa cag agg atg aca cgc aga tcc ctt cct ggt gaa caa gaa Met Lys Lys Gln Arg Met Thr Arg Arg Ser Leu Pro Gly Glu Gln Glu 1600 1605 1610	4851
cag gag gtg gct ggc tct aaa gtc ttt ctg gaa att gac aac cgc cag Gln Glu Val Ala Gly Ser Lys Val Phe Leu Glu Ile Asp Asn Arg Gln 1615 1620 1625 1630	4899
tgt gtt caa gac tca gac cac tgc ttc aag aac acg gat gca gca gca Cys Val Gln Asp Ser Asp His Cys Phe Lys Asn Thr Asp Ala Ala Ala 1635 1640 1645	4947
gct ctc ctg gcc tct cac gcc ata cag ggg acc ctg tca tac cct ctt Ala Leu Leu Ala Ser His Ala Ile Gln Gly Thr Leu Ser Tyr Pro Leu 1650 1655 1660	4995
gtg tct gtc gtc agt gaa tcc ctg act cca gaa cgc act cag ctc ctc Val Ser Val Val Ser Glu Ser Leu Thr Pro Glu Arg Thr Gln Leu Leu 1665 1670 1675	5043
tat ctc ctt gct gtt gct gtt gtc atc att ctg ttt att att ctg ctg Tyr Leu Leu Ala Val Ala Val Val Ile Ile Leu Phe Ile Ile Leu Leu 1680 1685 1690	5091
ggg gta atc atg gca aaa cga aag cgt aag cat ggc tct ctc tgg ctg Gly Val Ile Met Ala Lys Arg Lys Arg Lys His Gly Ser Leu Trp Leu 1695 1700 1705 1710	5139
cct gaa ggt ttc act ctt cgc cga gat gca agc aat cac aag cgt cgt Pro Glu Gly Phe Thr Leu Arg Arg Asp Ala Ser Asn His Lys Arg Arg 1715 1720 1725	5187
gag cca gtg gga cag gat gct gtg ggg ctg aaa aat ctc tca gtg caa Glu Pro Val Gly Gln Asp Ala Val Gly Leu Lys Asn Leu Ser Val Gln 1730 1735 1740	5235
gtc tca gaa gct aac cta att ggt act gga aca agt gaa cac tgg gtc Val Ser Glu Ala Asn Leu Ile Gly Thr Gly Thr Ser Glu His Trp Val 1745 1750 1755	5283

gat gat gaa ggg ccc cag cca aag aaa gta aag gct gaa gat gag gcc Asp Asp Glu Gly Pro Gln Pro Lys Lys Val Lys Ala Glu Asp Glu Ala 1760 1765 1770	5331
tta ctc tca gaa gaa gat gac ccc att gat cga cgg cca tgg aca cag Leu Leu Ser Glu Glu Asp Asp Pro Ile Asp Arg Arg Pro Trp Thr Gln 1775 1780 1785 1790	5379
cag cac ctt gaa gct gca gac atc cgt agg aca cca tcg ctg gct ctc Gln His Leu Glu Ala Ala Asp Ile Arg Arg Thr Pro Ser Leu Ala Leu 1795 1800 1805	5427
acc cct cct cag gca gag cag gag gtg gat gtg tta gat gtg aat gtc Thr Pro Pro Gln Ala Glu Gln Glu Val Asp Val Leu Asp Val Asn Val 1810 1815 1820	5475
cgt ggc cca gat ggc tgc acc cca ttg atg ttg gct tct ctc cga gga Arg Gly Pro Asp Gly Cys Thr Pro Leu Met Leu Ala Ser Leu Arg Gly 1825 1830 1835	5523
ggc agc tca gat ttg agt gat gaa gat gaa gat gca gag gac tct tct Gly Ser Ser Asp Leu Ser Asp Glu Asp Glu Asp Ala Glu Asp Ser Ser 1840 1845 1850	5571
gct aac atc atc aca gac ttg gtc tac cag ggt gcc agc ctc cag gcc Ala Asn Ile Ile Thr Asp Leu Val Tyr Gln Gly Ala Ser Leu Gln Ala 1855 1860 1865 1870	5619
cag aca gac cgg act ggt gag atg gcc ctg cac ctt gca gcc cgc tac Gln Thr Asp Arg Thr Gly Glu Met Ala Leu His Leu Ala Ala Arg Tyr 1875 1880 1885	5667
tca cgg gct gat gct gcc aag cgt ctc ctg gat gca ggt gca gat gcc Ser Arg Ala Asp Ala Ala Lys Arg Leu Leu Asp Ala Gly Ala Asp Ala 1890 1895 1900	5715
aat gcc cag gac aac atg ggc cgc tgt cca ctc cat gct gca gtg gca Asn Ala Gln Asp Asn Met Gly Arg Cys Pro Leu His Ala Ala Val Ala 1905 1910 1915	5763
gct gat gcc caa ggt gtc ttc cag att ctg att cgc aac cga gta act Ala Asp Ala Gln Gly Val Phe Gln Ile Leu Ile Arg Asn Arg Val Thr 1920 1925 1930	5811
gat cta gat gcc agg atg aat gat ggt act aca ccc ctg atc ctg gct Asp Leu Asp Ala Arg Met Asn Asp Gly Thr Thr Pro Leu Ile Leu Ala 1935 1940 1945 1950	5859
gcc cgc ctg gct gtg gag gga atg gtg gca gaa ctg atc aac tgc caa Ala Arg Leu Ala Val Glu Gly Met Val Ala Glu Leu Ile Asn Cys Gln 1955 1960 1965	5907
gcg gat gtg aat gca gtg gat gac cat gga aaa tct gct ctt cac tgg Ala Asp Val Asn Ala Val Asp Asp His Gly Lys Ser Ala Leu His Trp 1970 1975 1980	5955
gca gct gct gtc aat aat gtg gag gca act ctt ttg ttg ttg aaa aat Ala Ala Ala Val Asn Asn Val Glu Ala Thr Leu Leu Leu Lys Asn 1985 1990 1995	6003
ggg gcc aac cga gac atg cag gac aac aag gaa gag aca cct ctg ttt	6051

Gly	Ala	Asn	Arg	Asp	Met	Gln	Asp	Asn	Lys	Glu	Glu	Thr	Pro	Leu	Phe	
2000						2005					2010					
ctt	gct	gcc	cgg	gag	ggg	agc	tat	gaa	gca	gcc	aag	atc	ctg	tta	gac	6099
Leu	Ala	Ala	Arg	Glu	Gly	Ser	Tyr	Glu	Ala	Ala	Lys	Ile	Leu	Leu	Asp	
2015					2020					2025					2030	
cat	ttt	gcc	aat	cga	gac	atc	aca	gac	cat	atg	gat	cgt	ctt	ccc	cgg	6147
His	Phe	Ala	Asn	Arg	Asp	Ile	Thr	Asp	His	Met	Asp	Arg	Leu	Pro	Arg	
				2035					2040						2045	
gat	gtg	gct	cgg	gat	cgc	atg	cac	cat	gac	att	gtg	cgc	ctt	ctg	gat	6195
Asp	Val	Ala	Arg	Asp	Arg	Met	His	His	Asp	Ile	Val	Arg	Leu	Leu	Asp	
				2050					2055						2060	
gaa	tac	aat	gtg	acc	cca	agc	cct	cca	ggc	acc	gtg	ttg	act	tct	gct	6243
Glu	Tyr	Asn	Val	Thr	Pro	Ser	Pro	Pro	Gly	Thr	Val	Leu	Thr	Ser	Ala	
		2065						2070							2075	
ctc	tca	cct	gtc	atc	tgt	ggg	ccc	aac	aga	tct	ttc	ctc	agc	ctg	aag	6291
Leu	Ser	Pro	Val	Ile	Cys	Gly	Pro	Asn	Arg	Ser	Phe	Leu	Ser	Leu	Lys	
		2080					2085								2090	
cac	acc	cca	atg	ggc	aag	aag	tct	aga	cgg	ccc	agt	gcc	aag	agt	acc	6339
His	Thr	Pro	Met	Gly	Lys	Lys	Ser	Arg	Arg	Pro	Ser	Ala	Lys	Ser	Thr	
					2100						2105				2110	
atg	cct	act	agc	ctc	cct	aac	ctt	gcc	aag	gag	gca	aag	gat	gcc	aag	6387
Met	Pro	Thr	Ser	Leu	Pro	Asn	Leu	Ala	Lys	Glu	Ala	Lys	Asp	Ala	Lys	
					2115					2120					2125	
ggg	agt	agg	agg	aag	aag	tct	ctg	agt	gag	aag	gtc	caa	ctg	tct	gag	6435
Gly	Ser	Arg	Arg	Lys	Lys	Ser	Leu	Ser	Glu	Lys	Val	Gln	Leu	Ser	Glu	
				2130					2135						2140	
agt	tca	gta	act	tta	tcc	cct	gtt	gat	tcc	cta	gaa	tct	cct	cac	acg	6483
Ser	Ser	Val	Thr	Leu	Ser	Pro	Val	Asp	Ser	Leu	Glu	Ser	Pro	His	Thr	
				2145				2150							2155	
tat	gtt	tcc	gac	acc	aca	tcc	tct	cca	atg	att	aca	tcc	cct	ggg	atc	6531
Tyr	Val	Ser	Asp	Thr	Thr	Ser	Ser	Pro	Met	Ile	Thr	Ser	Pro	Gly	Ile	
						2165									2170	
tta	cag	gcc	tca	ccc	aac	cct	atg	ttg	gcc	act	gcc	gcc	cct	cct	gcc	6579
Leu	Gln	Ala	Ser	Pro	Asn	Pro	Met	Leu	Ala	Thr	Ala	Ala	Pro	Pro	Ala	
					2180					2185					2190	
cca	gtc	cat	gcc	cag	cat	gca	cta	tct	ttt	tct	aac	ctt	cat	gaa	atg	6627
Pro	Val	His	Ala	Gln	His	Ala	Leu	Ser	Phe	Ser	Asn	Leu	His	Glu	Met	
					2195					2200					2205	
cag	cct	ttg	gca	cat	ggg	gcc	agc	act	gtg	ctt	ccc	tca	gtg	agc	cag	6675
Gln	Pro	Leu	Ala	His	Gly	Ala	Ser	Thr	Val	Leu	Pro	Ser	Val	Ser	Gln	
				2210					2215						2220	
ttg	cta	tcc	cac	cac	cac	att	gtg	tct	cca	ggc	agt	ggc	agt	gct	gga	6723
Leu	Leu	Ser	His	His	His	Ile	Val	Ser	Pro	Gly	Ser	Gly	Ser	Ala	Gly	
				2225				2230							2235	
agc	ttg	agt	agg	ctc	cat	cca	gtc	cca	gtc	cca	gca	gat	tgg	atg	aac	6771
Ser	Leu	Ser	Arg	Leu	His	Pro	Val	Pro	Val	Pro	Ala	Asp	Trp	Met	Asn	



2240	2245	2250	
cgc atg gag gtg aat gag acc cag tac aat gag atg ttt ggt atg gtc			6819
Arg Met Glu Val Asn Glu Thr Gln Tyr Asn Glu Met Phe Gly Met Val			
2255	2260	2265	2270
ctg gct cca gct gag ggc acc cat cct ggc ata gct ccc cag agc agg			6867
Leu Ala Pro Ala Glu Gly Thr His Pro Gly Ile Ala Pro Gln Ser Arg			
2275	2280	2285	
cca cct gaa ggg aag cac ata acc acc cct cgg gag ccc ttg ccc ccc			6915
Pro Pro Glu Gly Lys His Ile Thr Thr Pro Arg Glu Pro Leu Pro Pro			
2290	2295	2300	
att gtg act ttc cag ctc atc cct aaa ggc agt att gcc caa cca gcg			6963
Ile Val Thr Phe Gln Leu Ile Pro Lys Gly Ser Ile Ala Gln Pro Ala			
2305	2310	2315	
ggg gct ccc cag cct cag tcc acc tgc cct cca gct gtt gcg ggc ccc			7011
Gly Ala Pro Gln Pro Gln Ser Thr Cys Pro Pro Ala Val Ala Gly Pro			
2320	2325	2330	
ctg ccc acc atg tac cag att cca gaa atg gcc cgt ttg ccc agt gtg			7059
Leu Pro Thr Met Tyr Gln Ile Pro Glu Met Ala Arg Leu Pro Ser Val			
2335	2340	2345	2350
gct ttc ccc act gcc atg atg ccc cag cag gac ggg cag gta gct cag			7107
Ala Phe Pro Thr Ala Met Met Pro Gln Gln Asp Gly Gln Val Ala Gln			
2355	2360	2365	
acc att ctc cca gcc tat cat cct ttc cca gcc tct gtg ggc aag tac			7155
Thr Ile Leu Pro Ala Tyr His Pro Phe Pro Ala Ser Val Gly Lys Tyr			
2370	2375	2380	
ccc aca ccc cct tca cag cac agt tat gct tcc tca aat gct gct gag			7203
Pro Thr Pro Pro Ser Gln His Ser Tyr Ala Ser Ser Asn Ala Ala Glu			
2385	2390	2395	
cga aca ccc agt cac agt ggt cac ctc cag ggt gag cat ccc tac ctg			7251
Arg Thr Pro Ser His Ser Gly His Leu Gln Gly Glu His Pro Tyr Leu			
2400	2405	2410	
aca cca tcc cca gag tct cct gac cag tgg tca agt tca tca ccc cac			7299
Thr Pro Ser Pro Glu Ser Pro Asp Gln Trp Ser Ser Ser Ser Pro His			
2415	2420	2425	2430
tct gct tct gac tgg tca gat gtg acc acc agc cct acc cct ggg ggt			7347
Ser Ala Ser Asp Trp Ser Asp Val Thr Thr Ser Pro Thr Pro Gly Gly			
2435	2440	2445	
gct gga gga ggt cag cgg gga cct ggg aca cac atg tct gag cca cca			7395
Ala Gly Gly Gly Gln Arg Gly Pro Gly Thr His Met Ser Glu Pro Pro			
2450	2455	2460	
cac aac aac atg cag gtt tat gcg tgagagagtc cacctccagt gtagagacat			7449
His Asn Asn Met Gln Val Tyr Ala			
2465	2470		
aactgacttt tgtaaagtct gctgaggaac aaatgaaggt catccgggag agaaatgaag			7509
aaatctcttg agccagcttc tagaggtagg aaagagaaga tgttcttatt cagataatgc			7569
aagagaagca attcgtcagt ttactgggt atctgcaagg cttattgatt attctaattct			7629

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